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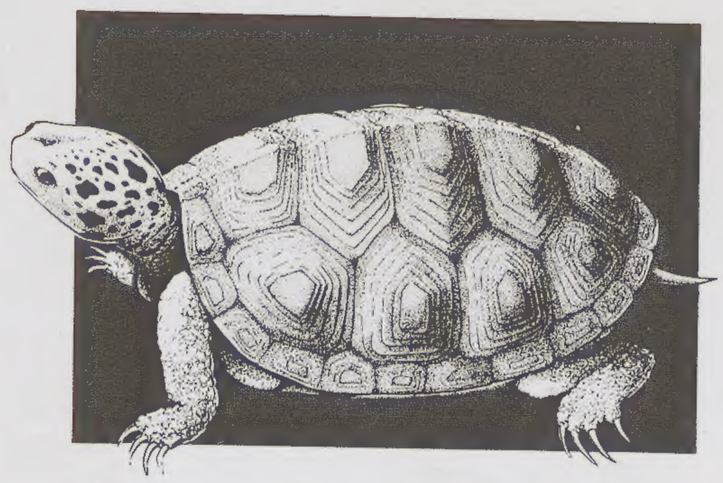

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# A HISTORY

OF

# BRITISH FOSSIL REPTILES.

BY

SIR RICHARD OWEN, K.C.B., F.R.S., ETC.,

FOREIGN ASSOCIATE OF THE INSTITUTE OF FRANCE (ACADEMY OF SCIENCES).

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## ERRATA.

Vol. IV., INDEX, p. v.—Plate 45 was cancelled.
*Ib.* *ib.* *ib.* 5 lines from bottom; for "Plate 19" read "18."

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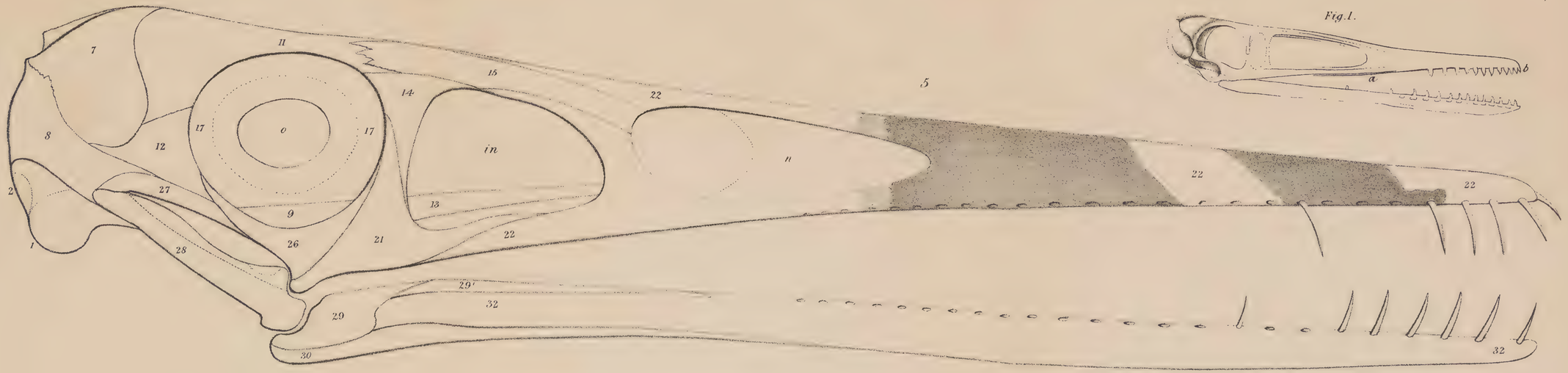
## *Pterosauria.*

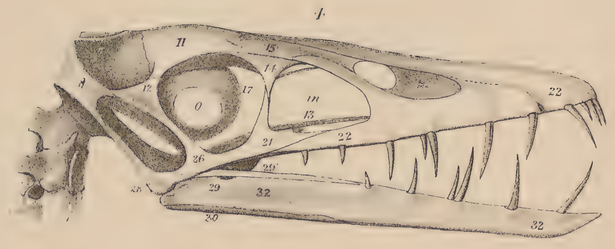
### PLATE 1.

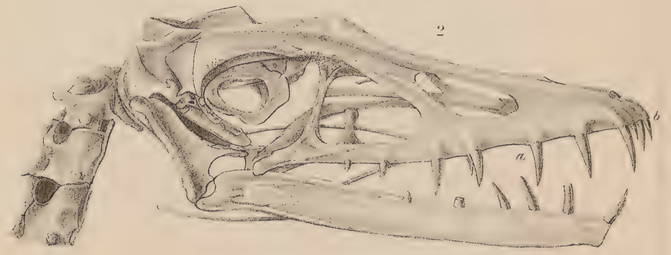
Fig.

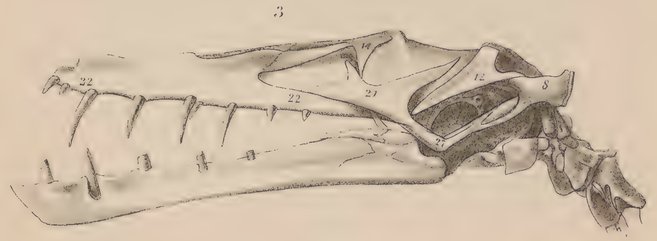
1. Skull of *Pterodactylus longirostris* (after COLLINI).
2. Left side of the skull of *Pterodactylus crassirostris.*
3. Right side of the same skull.
4. Restoration of the same skull (after GOLDFUSS).
5. Restoration of the skull of *Pterodactylus compressirostris.*

The tinted portions of fig. 5 are from the Middle Chalk of Kent, and are in the Museum of James Scott Bowerbank, Esq., F.R.S.




J. Dinkel. lith

*Fig. 1. Pterodactylus longirostris. 2. 4. Pt. crassirostris. 5. Pt. compressirostris.*

Day & Son, lith^rs to The Queen

*Pterosauria.*

PLATE 2.

*Pterodactylus compressirostris,* nat. size.

Fig.

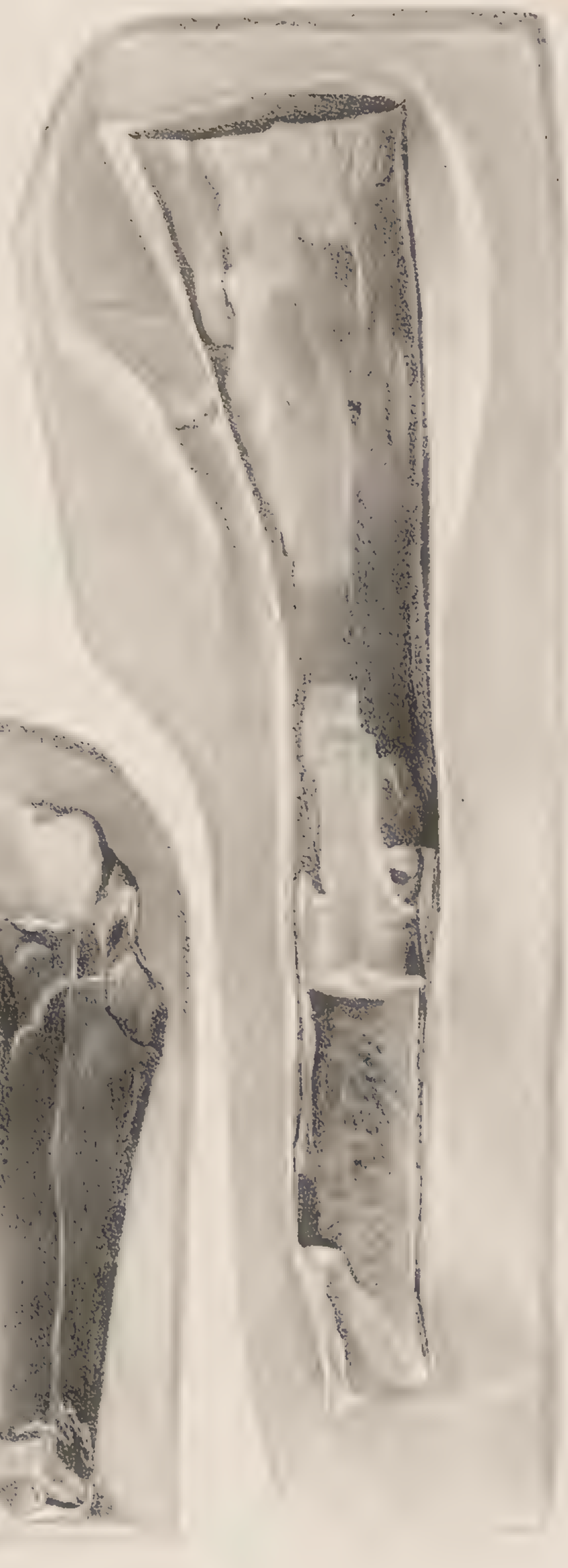
1. A large part of the shaft of the humerus, with a portion of the radius or ulna.

2. One end of a long bone of the wing of the same Pterodactyle.

3. Part of the shaft of the radius or ulna, from the same block of Chalk, as fig. 1.

From the Chalk of Kent. In the Collection of Thomas Charles, Esq., of Maidstone.

1



3



2

Day & Son, lith^rs to the Queen.

## PLATE 3.

Fig.

1. Side view of the end of the upper jaw of *Pterodactylus Cuvieri*, nat. size; *a*, *a*, the alveoli.
2. Outline of the section at the hinder fractured part.
3. Anterior end of the jaw.
4. Palatal surface of the jaw.
5. The crown of one of the teeth of the same jaw.
6. The crown of another tooth of the same jaw.
7. Magnified view of a portion of the crown of a tooth of the same jaw.
8. Left side of two portions of the upper jaw of *Pterodactylus compressirostris*, nat. size; *a*, *a*, alveoli; *n*, nostril.
9. Right side of the same two portions of jaw; *n*, nostril.

9*. Transverse section of the jaw at the fore part of the hinder fragment.

10. Palatal surface of the same two portions of jaw; *p*, the naso-palatine aperture.

Both the foregoing specimens are from the Burham Chalk-pit, Kent; and are in the Cabinet of James S. Bowerbank, Esq., F.R.S.

1..7. Pterodactylus Cuvieri, 8..10 Pt. compressirostris.

J. Dinkel del et lith.

Day & Son Lith^rs to The Queen

## PLATE 4.

Fig.

1 and 2. Wing-bone of *Pterodactylus Cuvieri.*

2*. Articular end of ditto: *a* and *b*, articular surfaces; *c*, fractured surface leading to the cavity of the bone.

3. Portion of the narrowest side of the same bone, showing the pneumatic foramen at *p*.

3*. Section of the same bone four inches from the articular end, showing the thickness of its dense osseous wall, and the wide air-cavity.

From the Burham Chalk-pit, Kent. In the Collection of J. Toulmin Smith, Esq.

4. A similar portion of a corresponding wing-bone of *Pterodactylus compressirostris*, nat. size: *p*, the pneumatic foramen.

4*. Part of the articular extremity; *a*, articular surface.

4**. Transverse section of the smallest part of the shaft.

From the Burham Chalk-pit, Kent. In the Collection of Jas. S. Bowerbank, Esq., F.R.S.

5. Portions of the shafts of the radius and ulna of *Pterodactylus compressirostris*, nat. size.

5.* The somewhat crushed and mutilated articular ends; *d*, articular surface.

From the Burham Chalk-pit, Kent. In the Cabinet of Mrs. Smith, of Tonbridge Wells.

J. Dinkel, del. et lith.

1...3 Pterodactylus Cuvieri, 4...5 Pt. compressirostris.

Day & Son, lith.

## PLATE 5.

Fig.

1. Section of the ulna of a Pelican (*Pelecanus onocrotalus*), recent.

2. Proximal end of one of the bones of the wing-finger of the *Pterodactylus compressirostris*.

3. Portion of the shaft, probably of the femur of a large Pterodactyle?

3′. Form of the transverse section of ditto.

4. Three views of the distal trochlear joint of one of the long bones, probably the metacarpal of the wing-finger, of a large Pterodactyle?

5. Two views of a similar, but less mutilated bone.

From the Middle Chalk of Kent.

6, 6′. Two views of a fragment of one of the long bones of a large Pterodactyle.

7. A portion of the shaft of a long bone of a large Pterodactyle.

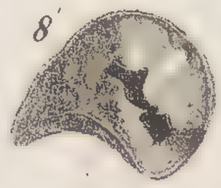
8, 8′, 8″. Three views of a portion of a humerus of a smaller Pterodactyle.

From the lower Green-sand, near Cambridge.

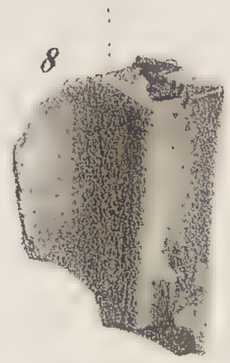
All the figures are of the natural size.

1

6



8′



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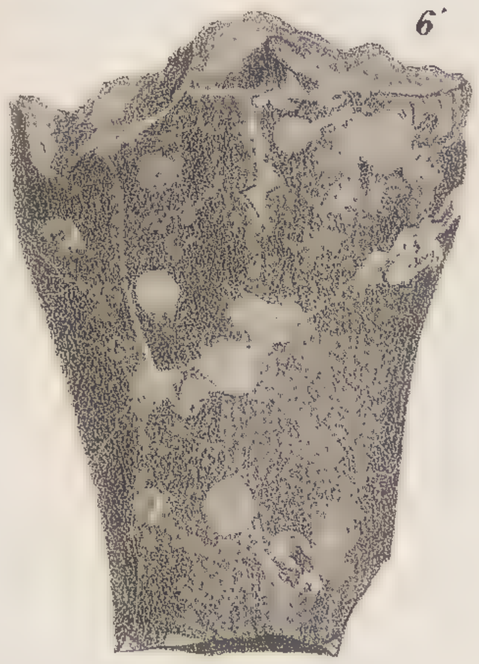

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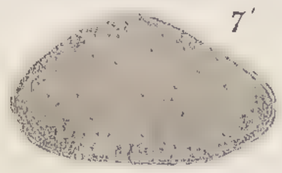
8″



2

3

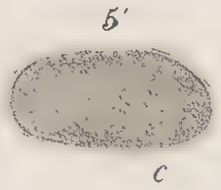
3′



7′

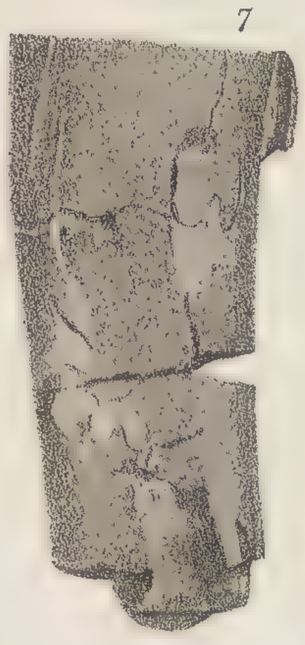
4

c



5′

c



7

a

b

a

b

## PLATE 6.

*Pterodactylus, conirostris; Pt. giganteus*, Bowerbank; nat. size.

Fig.

1. Right side of the anterior end of both jaws.
2. Left side of ditto showing the beginning of the external nostril, *n*.
3. Front view of both jaws, which are a little distorted.
4. Upper surface of the upper jaw.
5. Under surface of the lower jaw.
6. A tooth, magnified.
7. Coalesced ends of scapula, 51, and coracoid, 52, showing the glenoid cavity, *g*.
8. Side view of ditto. *a*, acromion.
9. A fragment of bone in the same block of chalk with the scapular arch, probably a piece of the sternum.
10. Mutilated end of a long bone.
11. The great part of the shaft of a long bone of the wing.
12. Proximal portion of the shaft of probably the tibia.
13. Two portions of long bones, and a portion of a rib.
14. A fragment of a long bone.

All the above parts are from the Burham Chalk-pit, Kent, with the exception of figs. 10 and 11, which are from the Halling Chalk-pit, in the same county. In the Museum of James S. Bowerbank, Esq., F.R.S.

*Pterodactylus conirostris.*

Day & Son, lith^rs to The Queen

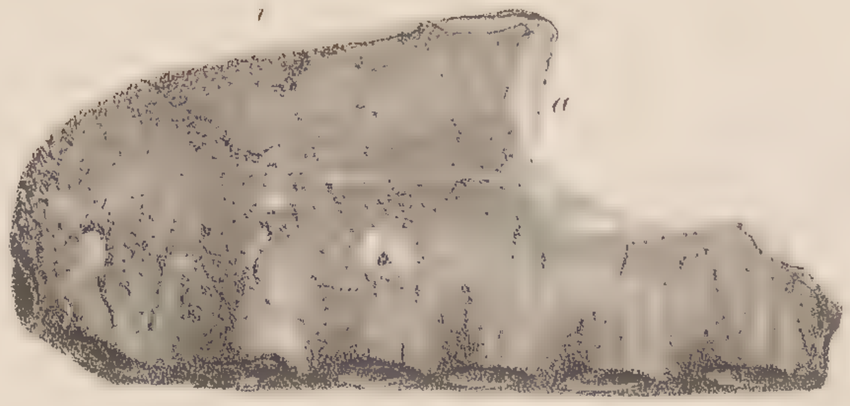
## PLATE 7.

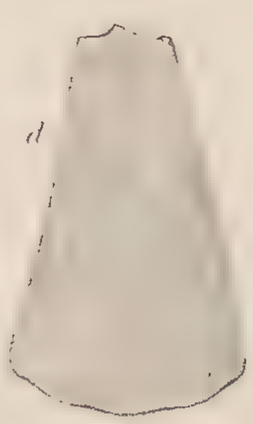
### Genus *Pterodactylus.*

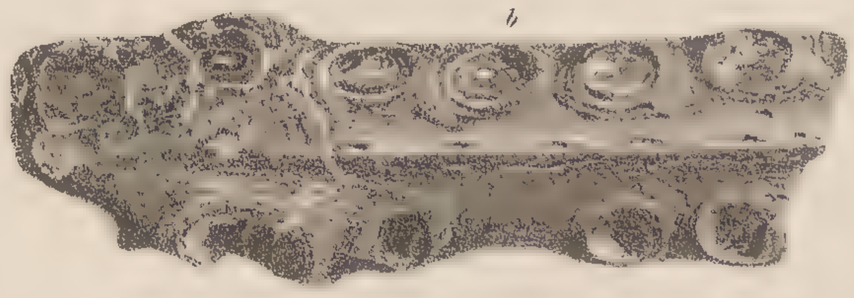
Fig.

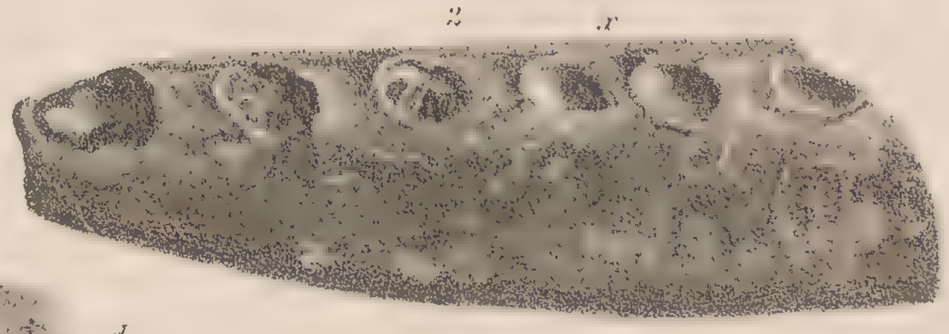
1. Fore part of the upper jaw of *Pterodactylus Sedgwickii*: *a*, side view; *b*, under view, or palatal surface; *c*, front view or end; *d*, section of fractured opposite end.
2. Fore part of the lower jaw of *Pterodactylus Sedgwickii*: *x*, side view; *b*, upper view; *c*, section of fractured end; *d*, one of the sockets, magnified, showing the protruding apex of a young successional tooth.
3. Fore part of the upper jaw of *Pterodactylus Fittoni*: *a*, side view; *b*, under view; *c*, section of fractured end.
4. Another portion of the upper jaw of *Pterodactylus Fittoni*: *a*, side view; *b*, section.
5. A fragment of the upper jaw with one socket of *Pterodactylus Fittoni*: *a*, under view; *b*, outside view; *c*, inside view, showing the large cancelli.
6. A fragment of the upper jaw of a large *Pterodactylus Sedgwickii*: *a*, under view; *b*, end view, showing the deep implantation of the tooth; *c*, outside view.
7. Part of the under jaw of *Pterodactylus Sedgwickii*: *a*, side view; *b*, upper view, or that next the mouth; *c*, under view; *d*, section.
8. Base of a tooth, impressed by the apex of a successional tooth, at *o*.
9. Crown of a tooth.
10. Base of a large tooth, showing the longitudinally wrinkled cement.
11. Anchylosed atlas and axis: *c*, centrum of atlas; *cx*, centrum of axis; *b*, articular ball of axis; *p*, inferior process; *o*, pneumatic foramen; *n*, neurapophysis of atlas; *nx*, neural arch of axis; *z*, posterior zygapophysis and tubercle of axis.
12. Section of anchylosed atlas and axis: *h*, median hypapophysis.
13. Front view of the axis vertebra from which the atlas has been detached.
14. Back view of the same vertebra.

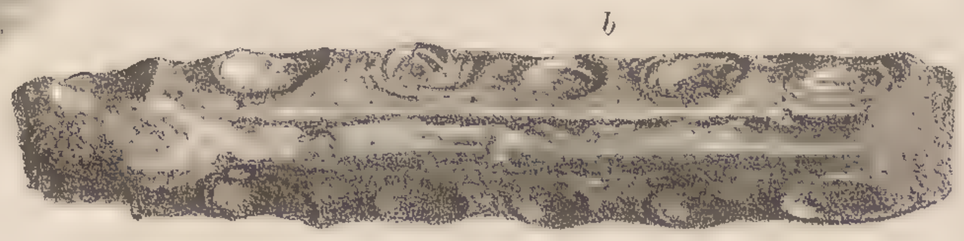
All the foregoing figures are of the natural size, and from specimens in the Woodwardian Museum of the University of Cambridge (with the exception of fig. 7 in the Private Collection of the Rev. G. D. Liveing, M.A., of St. John's College, Cambridge); they were obtained from the Upper Geen-sand (Neocomian), near that town.

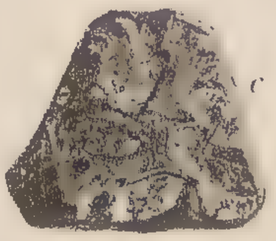


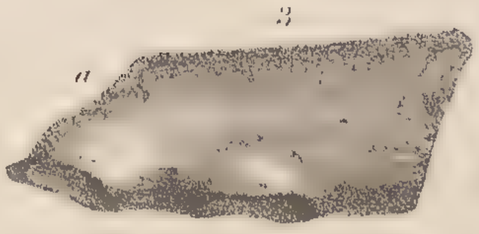


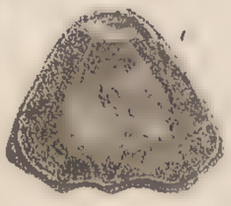


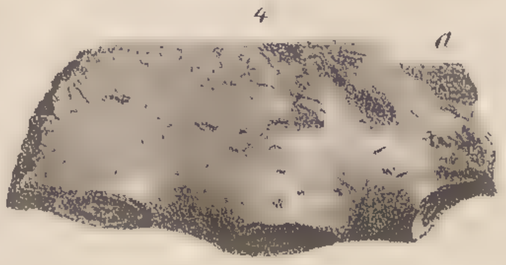


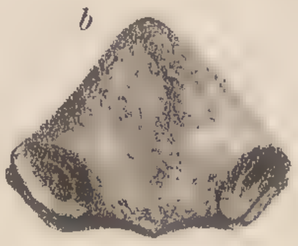


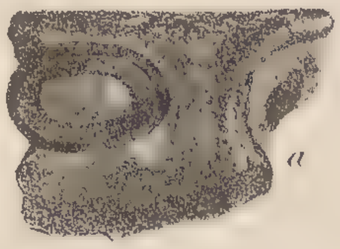


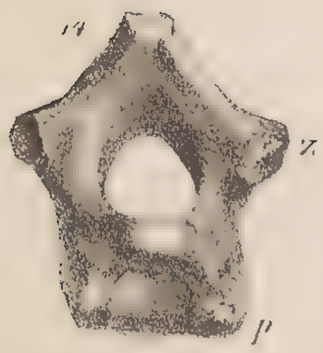


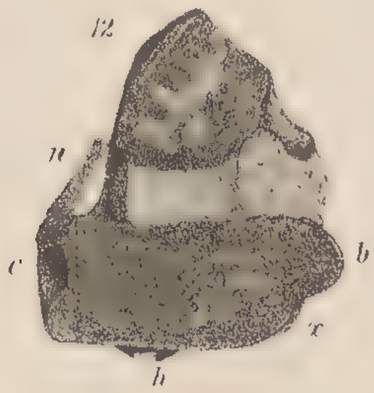


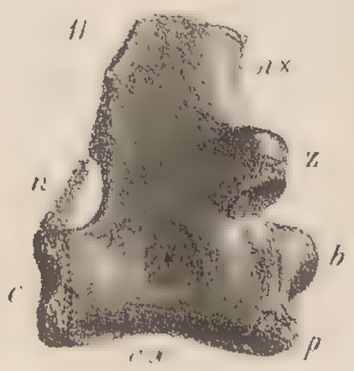












Jos Dinkel lith

W West imp

## PLATE 8.

Vertebræ of *Pterodactylus Sedgwickii* and *Pter. Fittoni.*

Fig.

1. Front view of anchylosed atlas and axis.
2. Back view of the same.
3. Side view of the same.
4. Under view of the same: *a*, anterior tubercle, or rudiment of zygapophysis, of axis; *z*, posterior zygapophysis, of axis; *c*, centrum of atlas; *p*, infero-posterior processes of axis; *b*, articular ball of axis.
5. Front view of a larger specimen of atlas and axis.
6. Under view of the same, indicative of a species distinct from fig. 4.
7. Side view
8. Back view
9. Upper view
10. Front view
11. Under view

} of a middle cervical vertebra.

12. Under view
13. Side view

} of a cervical vertebra.

14. Upper view
15. Side view
16. Under view

} of a cervical vertebra.

17. Upper view
18. Under view

} of a more complete cervical vertebra.

19. Section of a large cervical vertebra.

20. Under view
21. Front view
22. Side view

} of an anterior dorsal vertebra.

23. Front view of a lumbar vertebra.

24. Side view
25. Back view

} of a dorsal vertebra.

26. Under view of three anchylosed sacral vertebræ.

All the figures are of the natural size, and from specimens in the Woodwardian Museum of the University of Cambridge, which were found in the Upper Green-sand (Neocomian) near that town.

Jos Dinkel lith

W.West imp

## PLATE 9.

*Pterodactylus Sedgwickii* and *Pterodactylus Fittoni.*

Fig.

1. Humeral end of anchylosed scapula *a*, and coracoid *b*, with the glenoid articular cavity. The letter *c* indicates the base of the broken-off anterior or angular production of the coracoid.
2. Front view of the same specimen.
3. Similar view of the glenoid articular cavity of a similar sized Pterodactyle.
4. Glenoid articular cavity of a smaller specimen, and probably different species.
5. Inner surface of the anchylosed humeral end of the scapula and coracoid of a still smaller Pterodactyle.
6. The scapulo-coracoid arch of *Pterodactylus* (*Dimorphodon*) *macronyx*, Bkd.
7. The articular head of the right humerus of a large Pterodactyle.
8. The articular head of the left humerus of a large Pterodactyle.
9. The articular head of the left humerus of a smaller Pterodactyle.
10. The articular head of the right humerus of a similar sized Pterodactyle.
11. The articular head
12. (The convex side) } of the proximal end of the humerus of a Pterodactyle.
13. (The concave side)
14. (The convex side) } of the proximal end of the humerus of a smaller Pterodactyle.
15. (The concave side)
16—20. Different teeth of Pterodactyles.

All the figures are of the natural size, and from specimens in the Woodwardian Museum of the University of Cambridge, which were found in the Upper Green-sand (Neocomian) near that town.

Jos Dinkel lith.

W.West. imp.

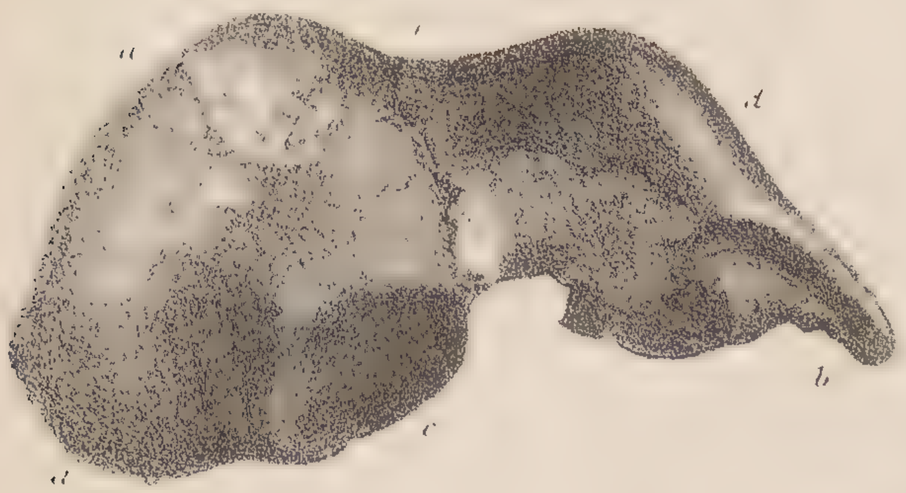
## PLATE 10.

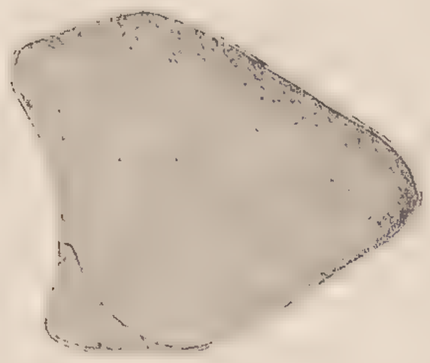
*Pterodactylus Sedgwickii* and *Pter. Fittoni.*

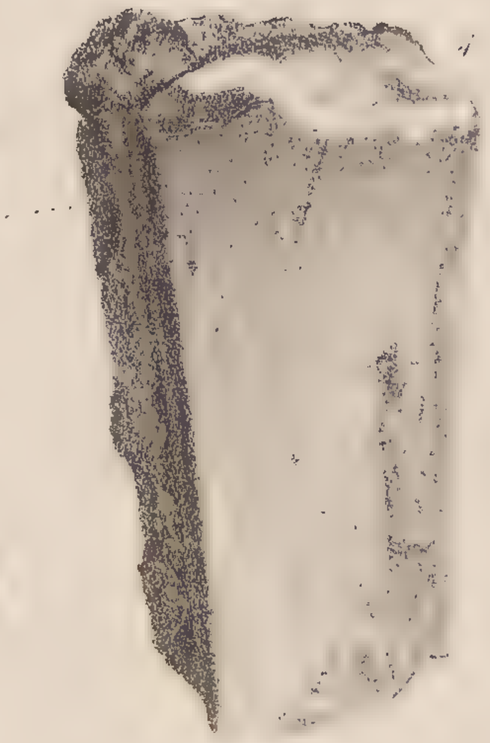
Fig.

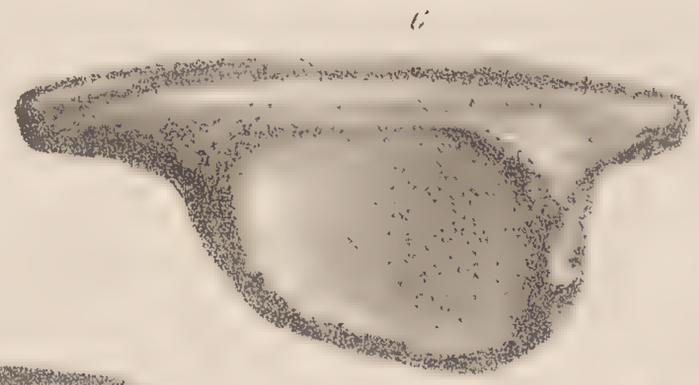
1. Articular end,
2. Front (?) surface
3. Back (?) fractured) surface } of a long bone of the wing.
4. Side view
5. Back (?) view } of part of the proximal end of the metacarpal of the 5th or wing-finger.
6. Side view
7. Upper (?) view
8. Opposite fractured surface } of a symmetrical (probably frontal) bone.
9. Articular end
10. Side view
11. Back view } of the trochlear distal extremity of the metacarpal of the 5th or wing-finger.

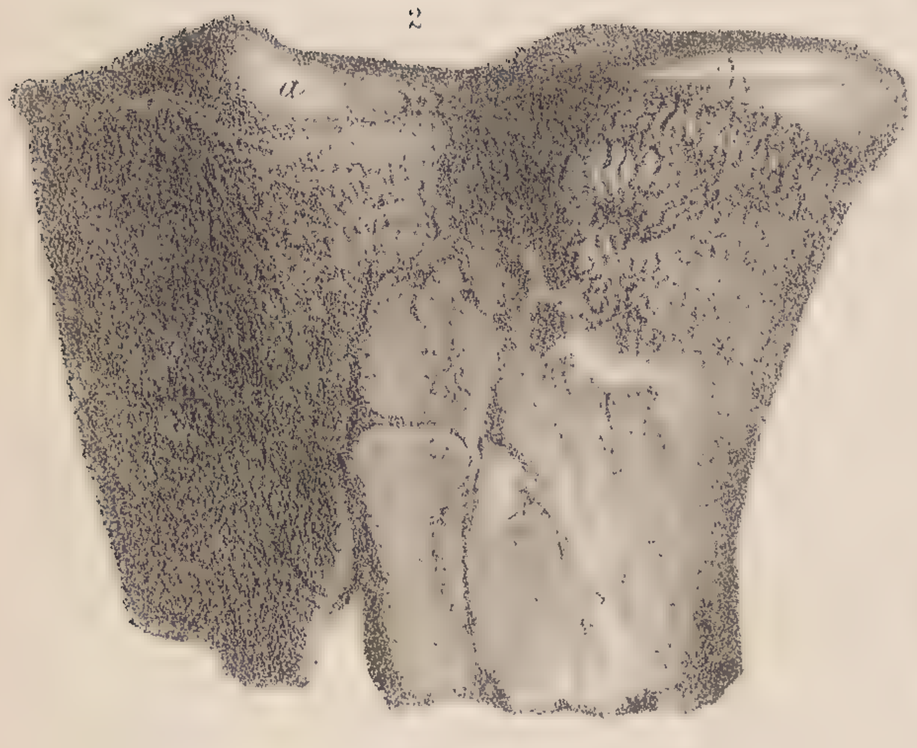
All the figures are of the natural size, and from specimens in the Woodwardian Museum of the University of Cambridge, which were found in the Upper Green-sand (Neocomian) near that town.

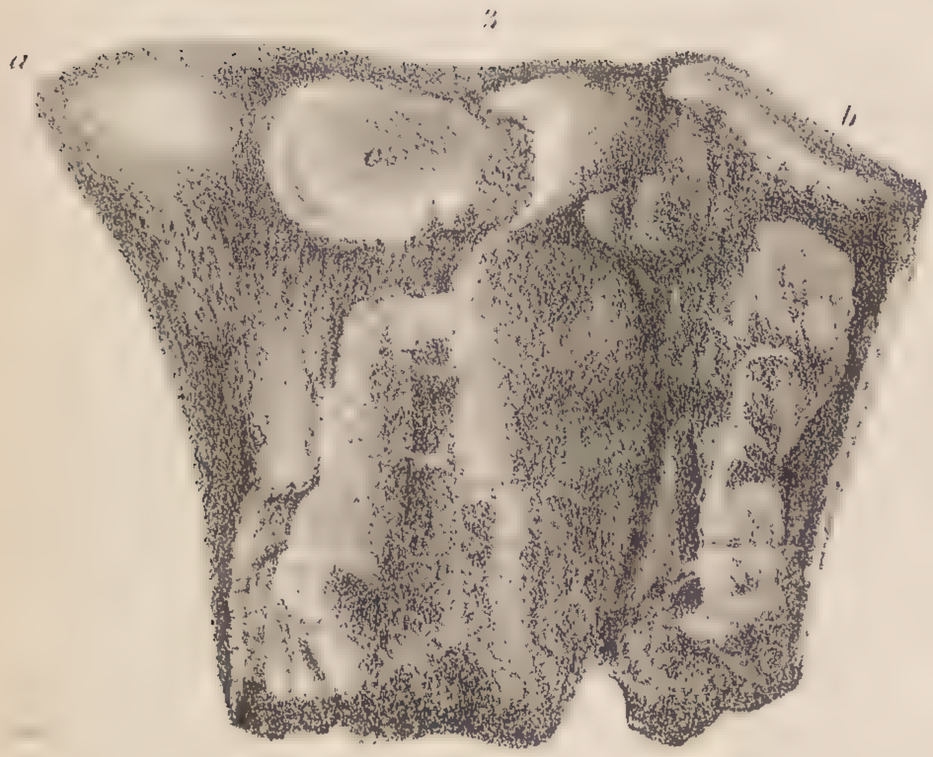


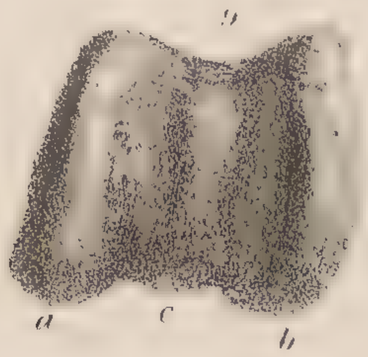







Jos. Dinkel lith

W West imp.

# PLATE 11.

PTEROSAURIA.—*Pterodactylus simus.*

Fig.

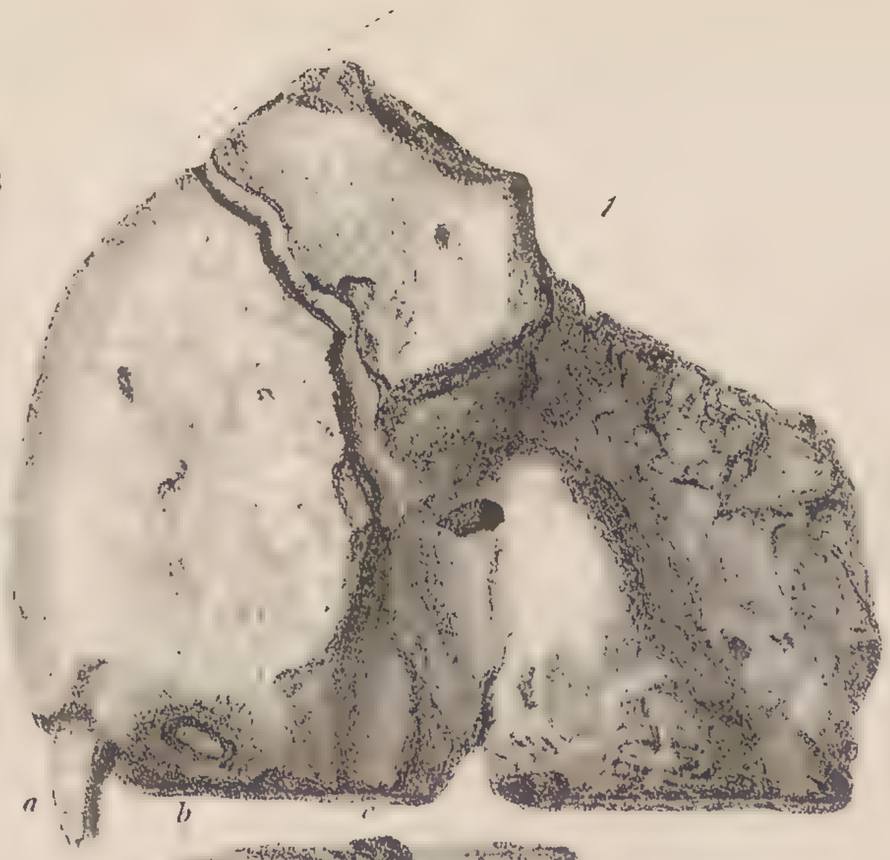
1. }
2. }
3. } Fore part of skull.
4. }
5. }

6. }
7. }
8. } Hind part of mandible (*Pter. Woodwardi*).
9. }
10. }

11. }
12. }
13. } Vertebræ (*Ib. ib.*).
14. }
15. }
16. }

All the figures are of the natural size, and from specimens in the Woodwardian Museum, Cambridge; from the Upper Greensand (Newcomian), near that town.

3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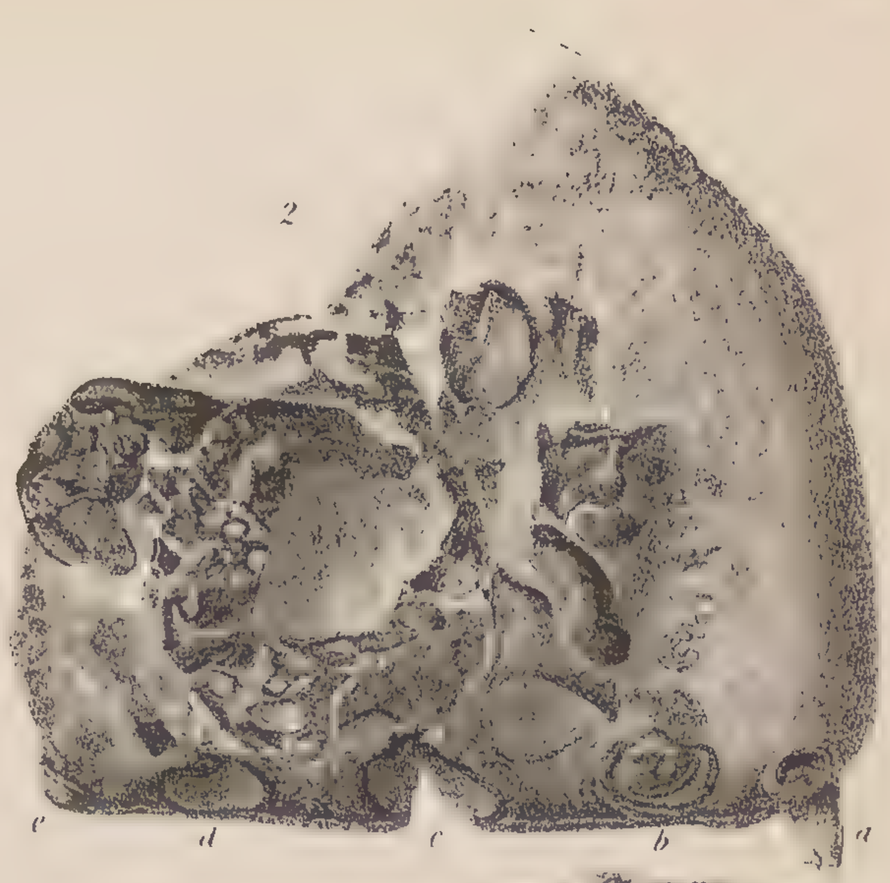
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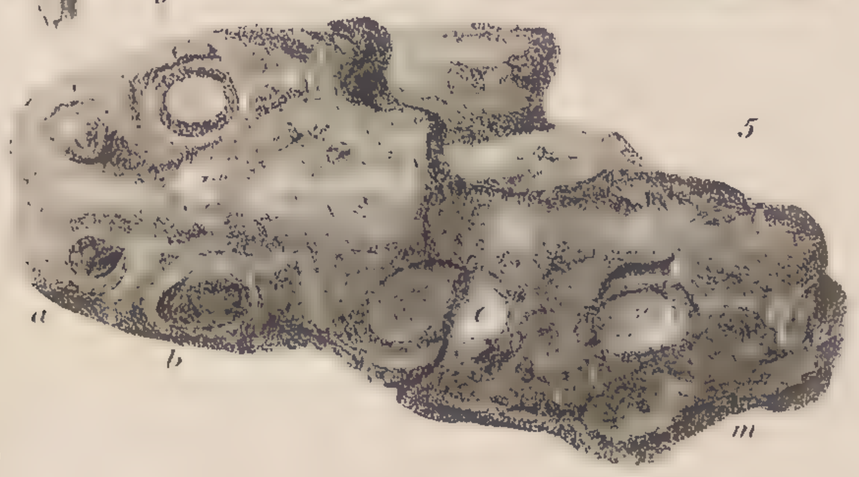
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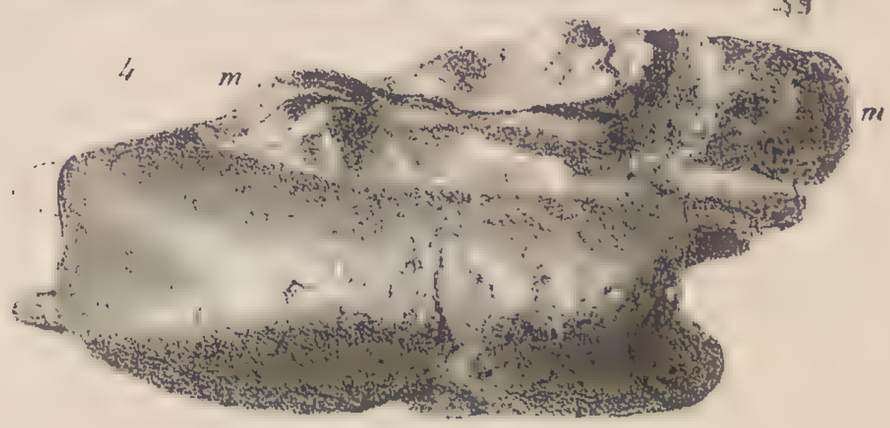
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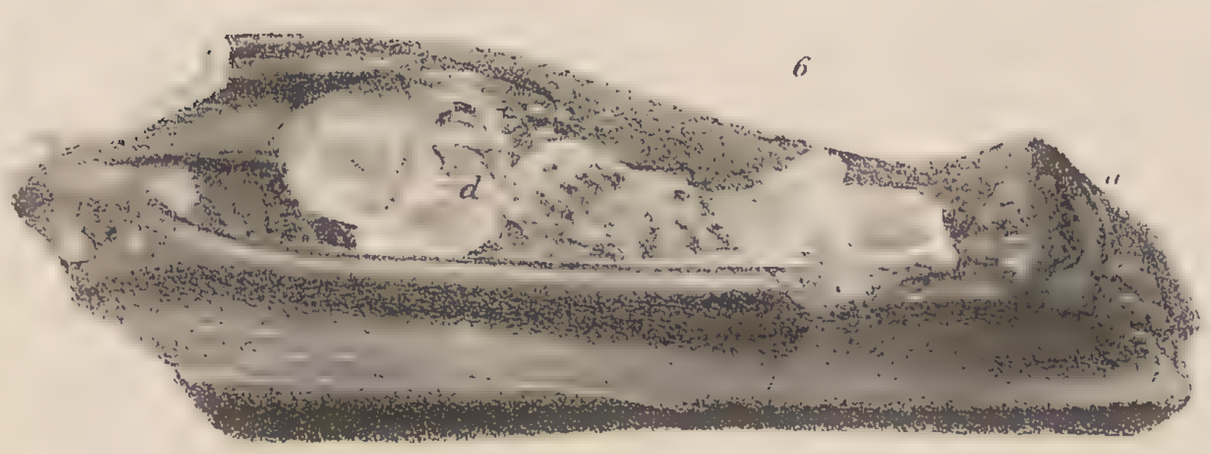
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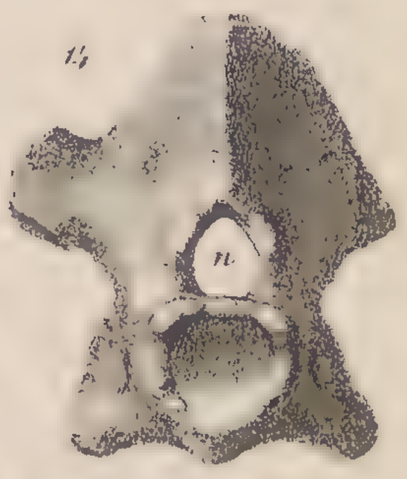
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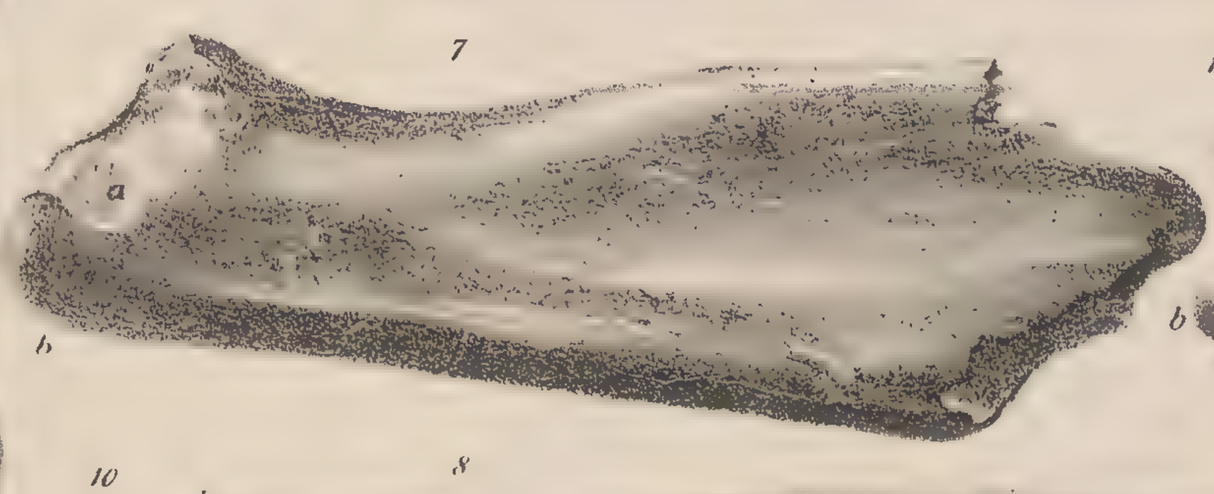
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11

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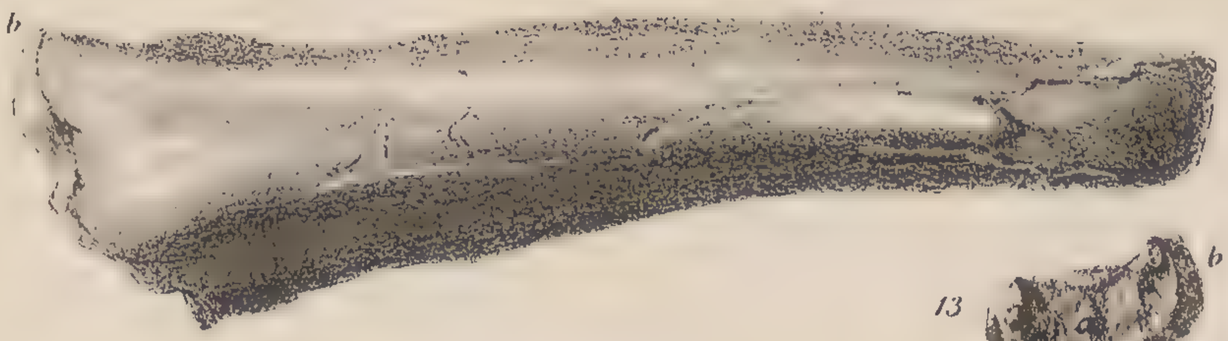
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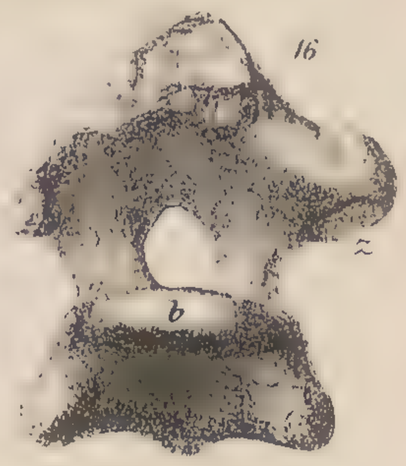
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WWest imp.

# PLATE 12.

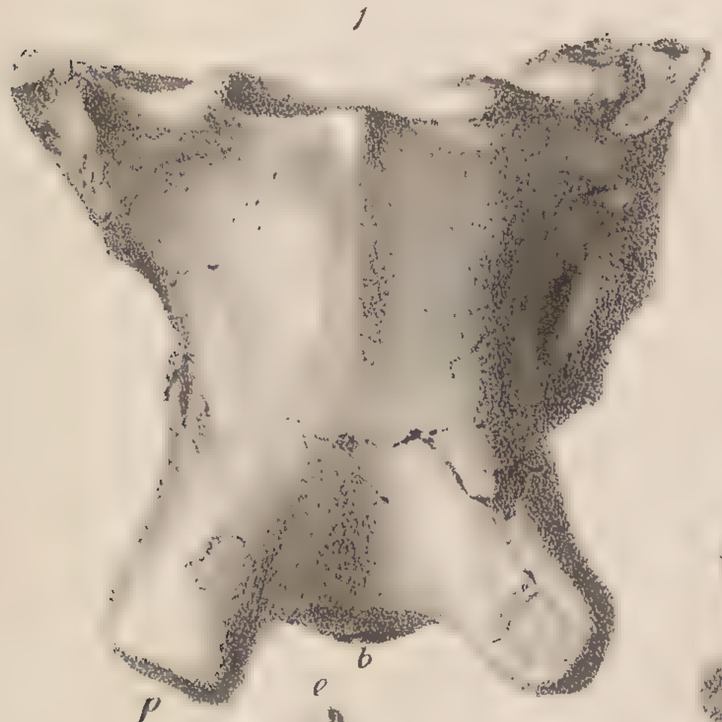
PTEROSAURIA.—*Pterodactylus Woodwardi.* *Criorhynchus simus.*

FIG.

1. }
2. } Cervical vertebræ.
3. Fore part of skull.
4. Last cervical vertebra.
5. Articular surface for wing-bones.
6. Carpal bone.
7. }
8. }
9. } Part of sternum.
10. }
11. }
12. }
13. }
14. } Caudal vertebræ.
15. }
16. }

From Upper Greensand, Cambridgeshire.

*1*

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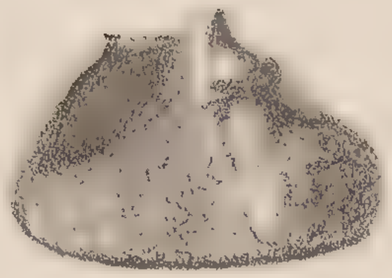
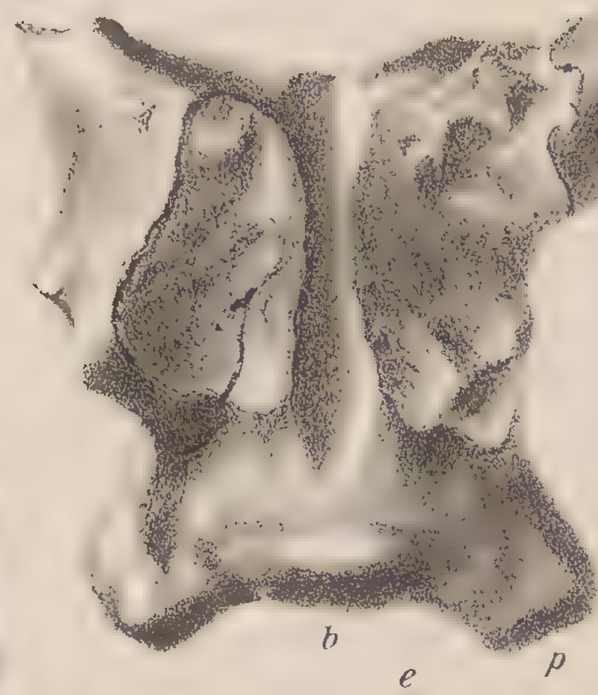


*11*

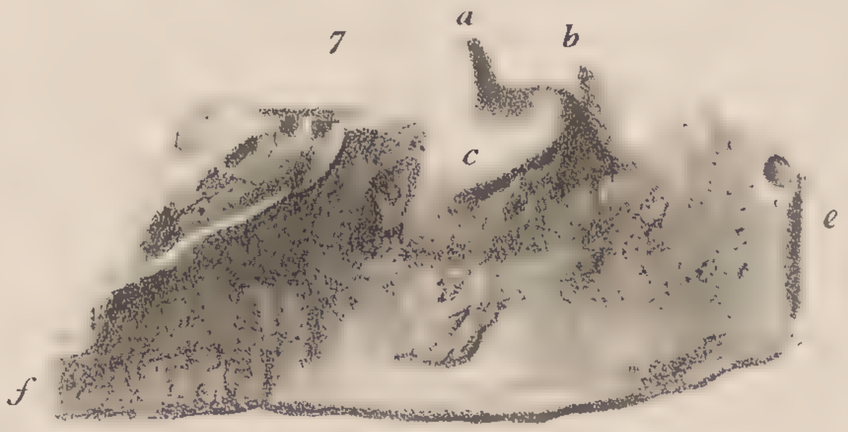
*12*

*2*




*8*

*7*



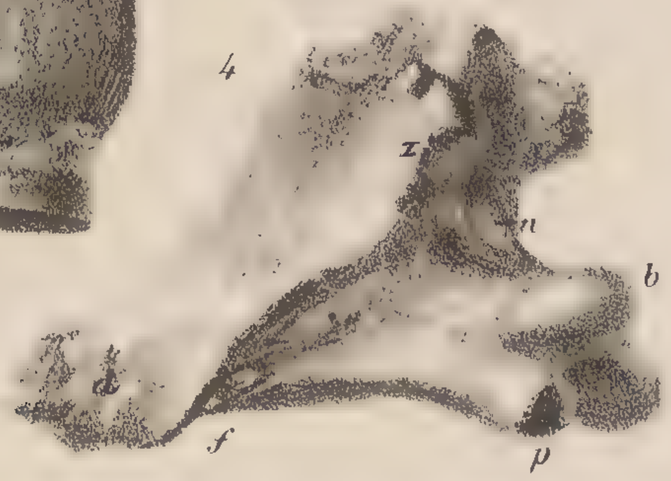

*9*

*3*

*3c*

*5*

*4*

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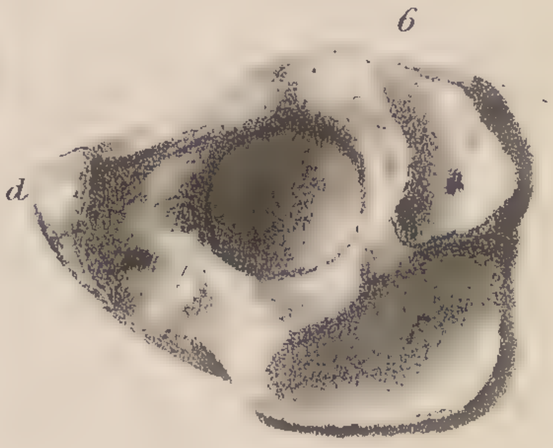



*13*

*14*

*15*

*16*

Jos. Dinkel lith

W. West imp.

# PLATE 13.

PTEROSAURIA.— *Pterodactylus Woodwardi* (?).

FIG.

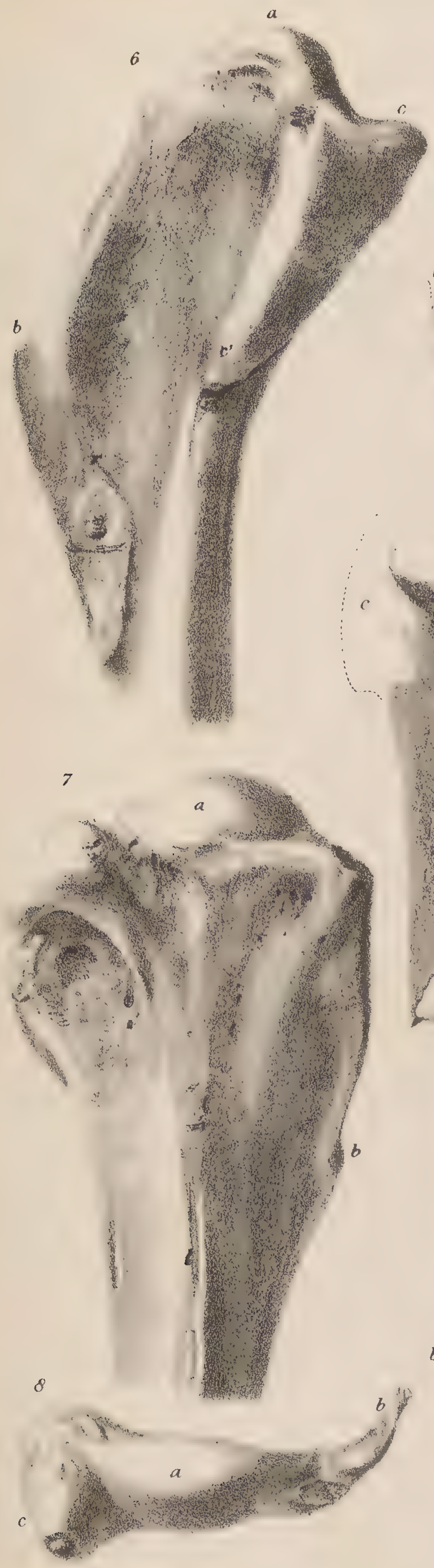
1. }
2. }
3. } Proximal end of humerus.
4. }

5. Ib. (small species of Pterodactyle).

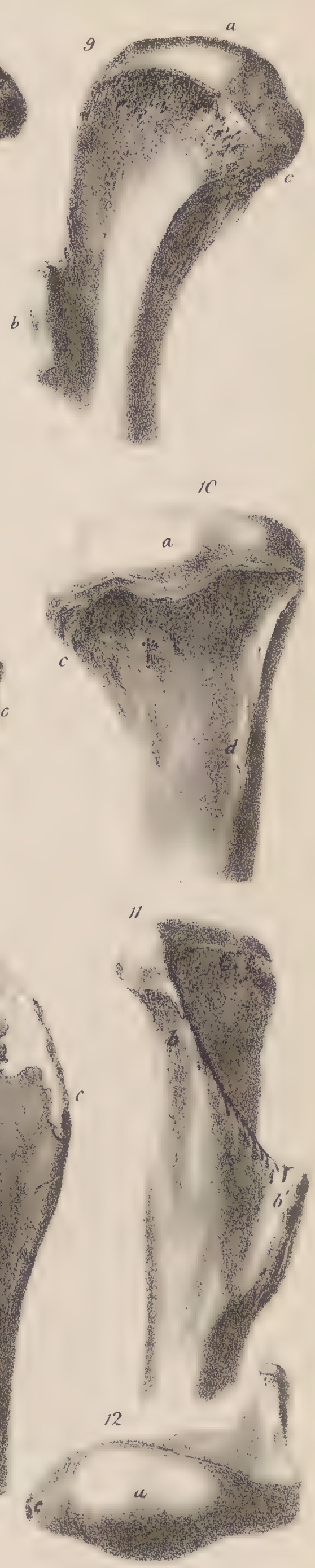
6. }
7. } Ib., Vulture.
8. }

9. }
10. } Ib., Crocodile.
11. }
12. }

Figs. 1—5, from Upper Greensand, Cambridgeshire.


6
a
c
b
c'

1
a
c
b
r
b'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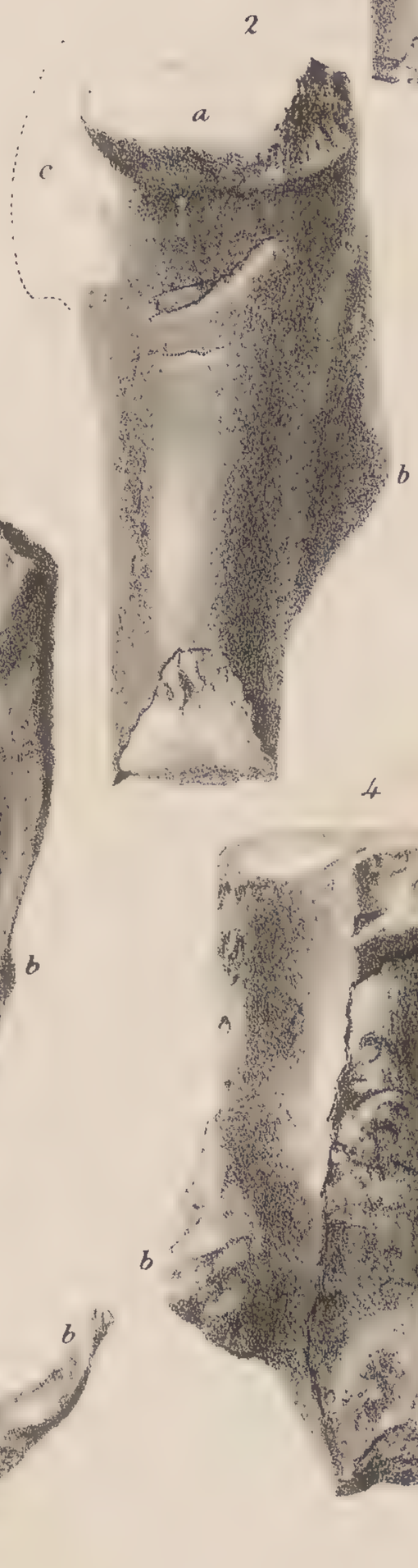

2
a
c
b


5
a
b
c


10
a
c
d


7
a
c
b


4
b
b

3
p
c
b
b'


11
b'
12
a
c


8
b
a
c

# PLATE 14.

## Enalio- and Ptero-sauria.

Fig.

1—3. Portions of skull and teeth, *Polyptychodon*.
4. Portion of a tooth of *Pterodactylus Fittoni*.
5. Unciform (?) carpal bone of do.
6. Opposite side of do.
7. Carpal bone of do.
8. Opposite side of do.
9. Non-articular side of the same bone.
10. Opposite non-articular side of do.
11. Ungual phalanx of a large Pterodactyle.
12. Upper view of the same bone.

Figs. 1—3, from Cretaceous Deposits near Frome; 4—12, from the Upper Greensand of Cambridgeshire.

1
s
s
t
t
r
3
b
a
7
p
11
15
2
c
5
h
6
h
9
d
f
11
12
10
a
7
d
8
d

PLATE 15.

*PTEROSAURIA.*

*Dimorphodon macronyx.*

Skull and parts of the skeleton : nat. size.

From the Lower Lias of Lyme Regis. In the British Museum.

PHOTOGRAPHED BY THE TRUSTEES OF THE BRITISH MUSEUM

PLATE 16.

*PTEROSAURIA.*

*Dimorphodon macronyx.*

Skull and parts of the skeleton : nat. size.

From the Lower Lias of Lyme Regis. In the British Museum.

J. Erxleben lith ad nat.

DIMORPHODON MACRONYX.

W. West imp

# PLATE 17.

## *PTEROSAURIA.*

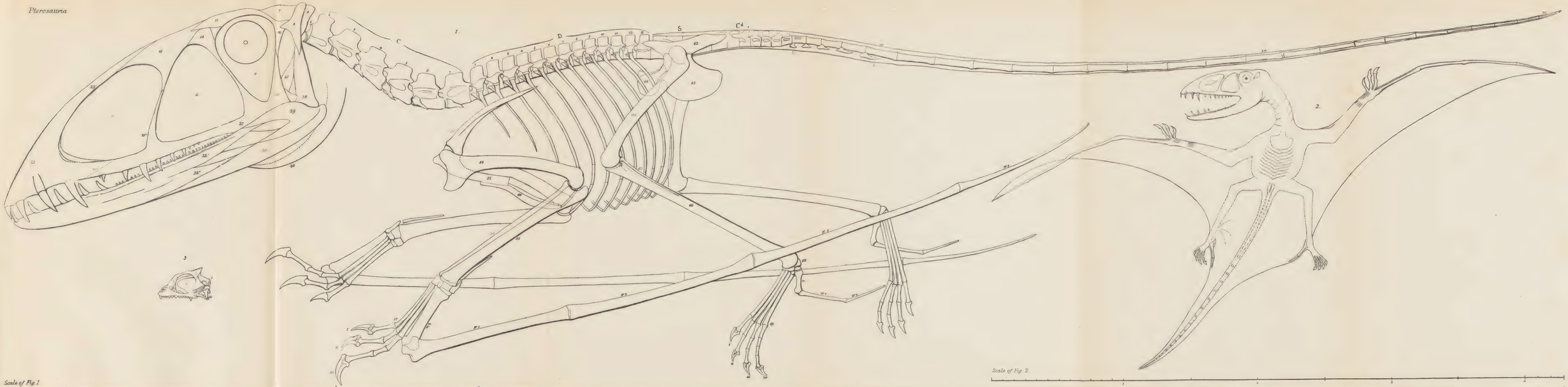
*Dimorphodon macronyx.*

Fig.

1. Restoration of the skeleton : nat. size.

2. Restoration of entire animal : reduced (see 'Scales' at foot of plate).

3. Side view of the skull of a recent Saurian (*Lyriocephalus*).




H. Owen. del. On Stone by J. Erxleben

RESTORATION OF DIMORPHODON.

## PLATE 18.

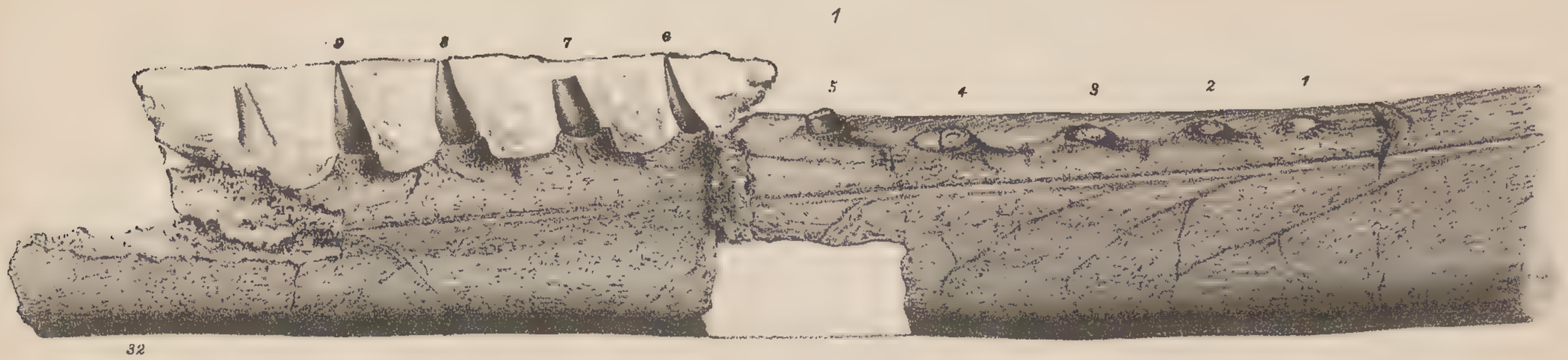
FIG.

1. Outer side view of part of left mandibular ramus, with teeth, of *Pterodactylus sagittirostris.*
2. Outer side view of part of right ramus of the same mandible.
3. Upper view of the same specimen.
4. Inner side view of part of the left mandibular ramus of ditto.
5. Outer side view of articular part of the right mandibular ramus of ditto.
6. Upper view of the same specimen.
7. Inner side view of the same specimen.

The above figures are of the natural size.

8. Reduced upper view of the same specimens, with conjectural restoration, in dotted outline, of the form or proportions of the entire mandible of *Pterodactylus sagittirostris.*

This fossil, from the Hastings series of the Wealden, west of St.-Leonard's-on-Sea, Sussex, is in possession of its discoverer, Samuel H. Beckles, Esq., F.R.S.

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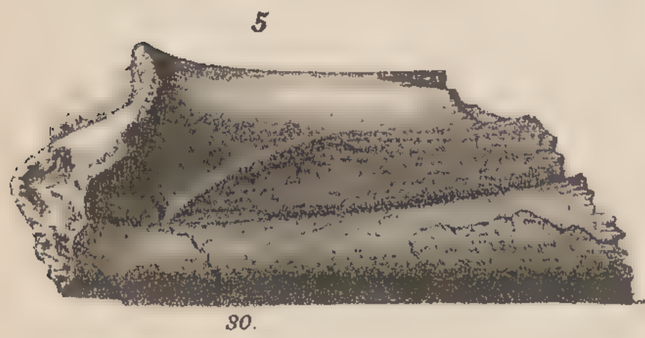


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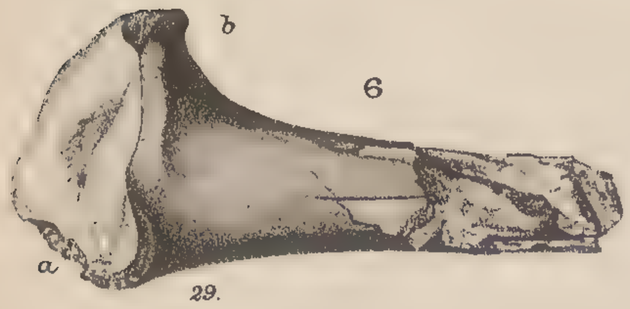


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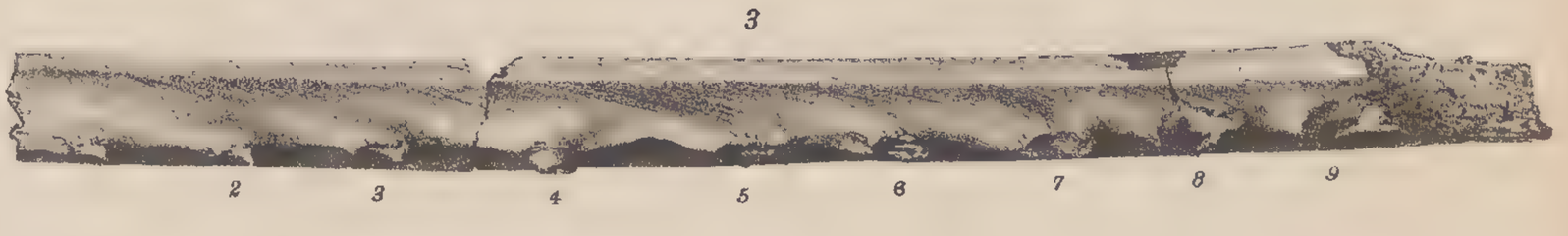
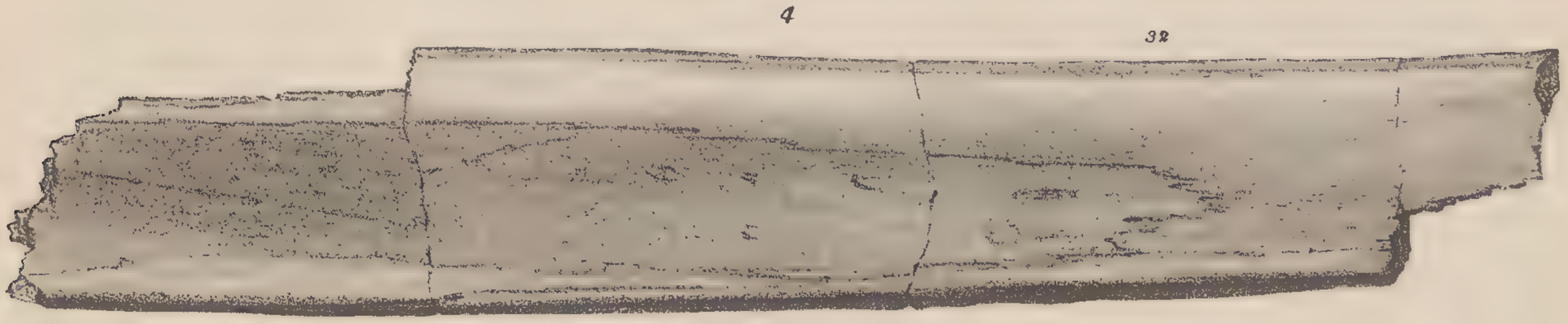
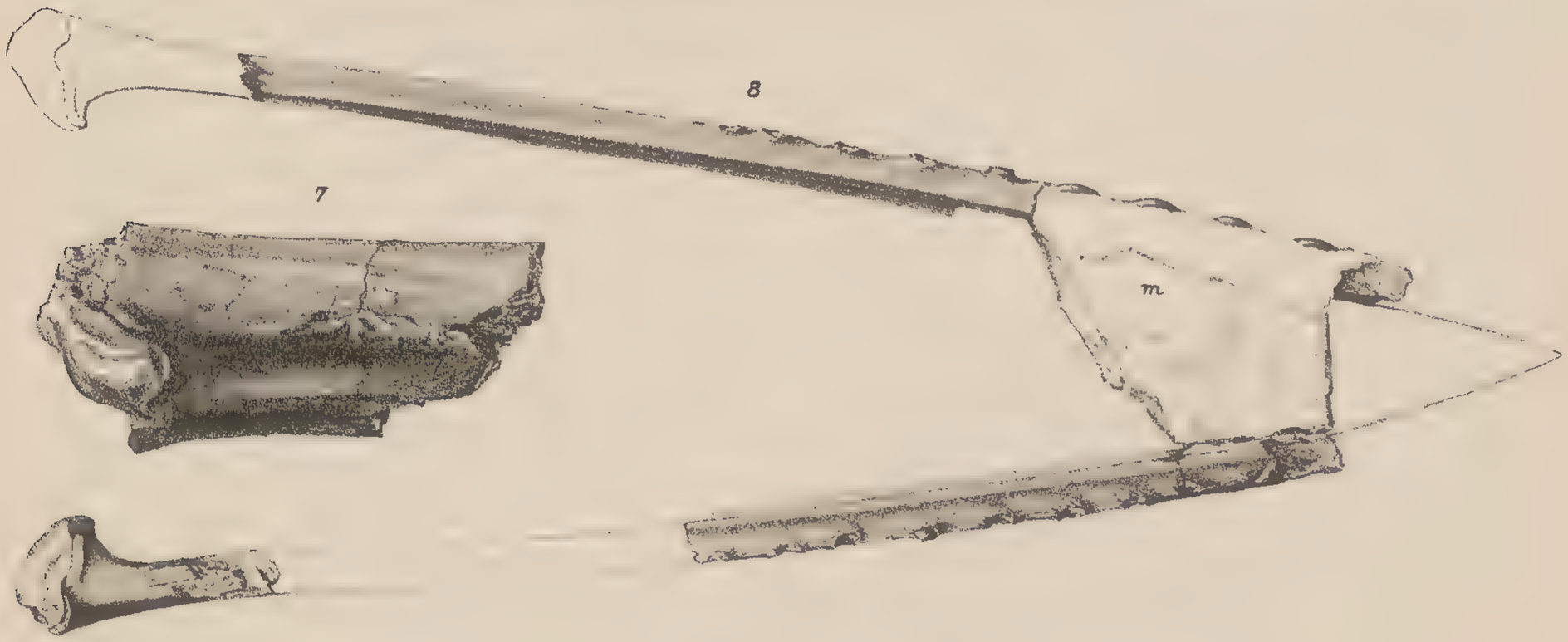



C.L. Griesbach del et lith.

Mintern Bros. imp.

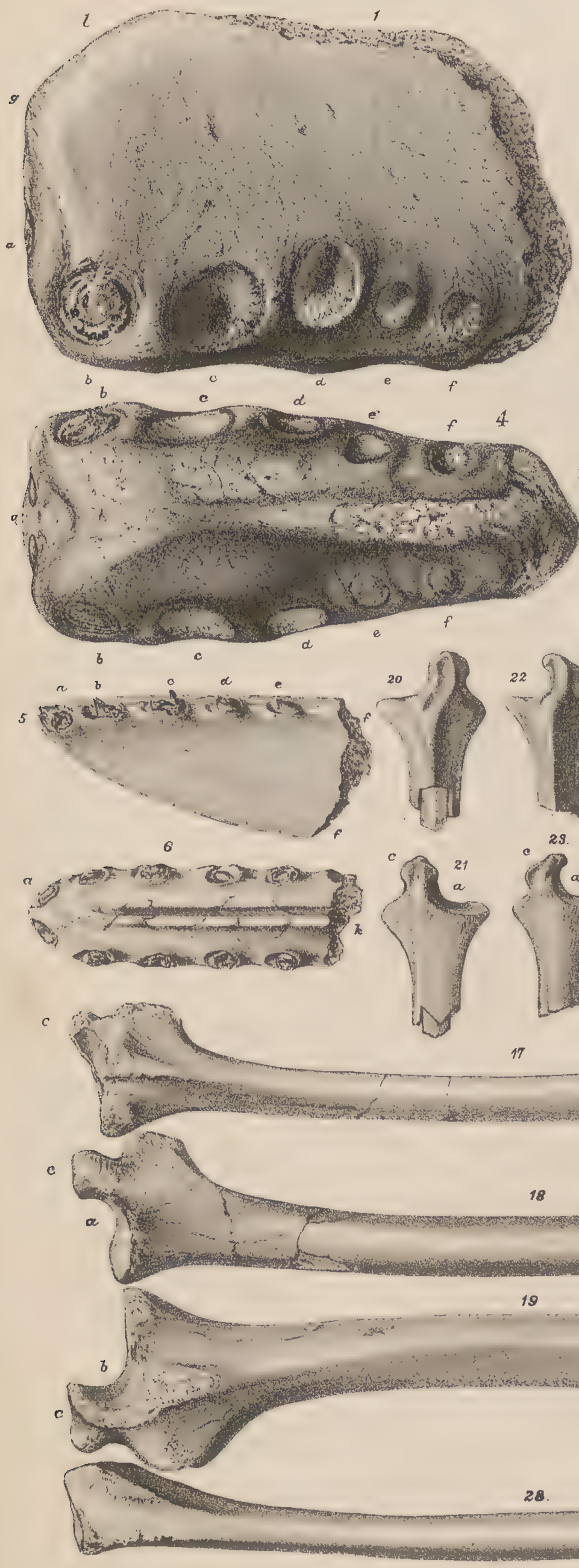
## PLATE 19.

FIG.

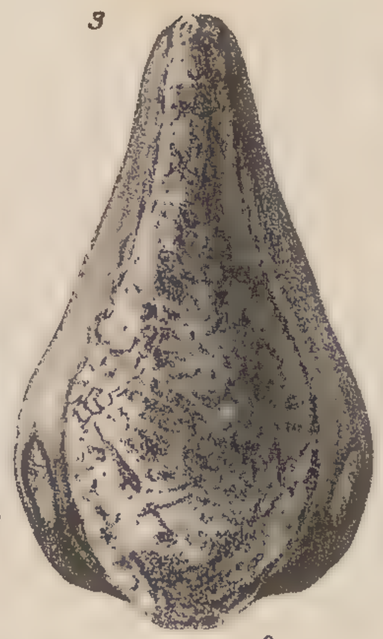
1. Left side view of fore end of upper jaw of *Coloborhynchus clavirostris.*
2. Front view of the same specimen.
3. Hind view of ditto.
4. Under or palatal view of ditto.
5. Left side view of fore end of lower jaw of *Pterodactylus Daviesii.*
6. Upper or oral view of the same specimen.
7. Front or thenal view of proximal portion of right humerus of *Pterodactylus Marderi.*
8. Back or anconal view of the same specimen.
9. Proximal end, with the 'head' or articular surface, of ditto.
10. Front or thenal view of proximal portion of left humerus of *Pterodactylus Manselii.*
11. Back or anconal view of the same specimen.
12. Proximal end, with the head or articular surface, of do.
13. Front or thenal view of distal end of right humerus of *Pterodactylus* (*Dimorphodon*) *macronyx.*
14. Back or anconal view of the same specimen.
15. Front or thenal view of distal portion of left humerus of *Pterodactylus Pleydellii.*
16. Back or anconal view of the same specimen. 16′. Articular end of ditto.
17. Front or thenal view of the proximal phalanx of the fourth or 'wing-finger' of *Pterodactylus Kiddii.*
18. Back or anconal view of the proximal phalanx of the 'wing-finger' of *Pterodactylus Duncani.*
19. Outer side view of the proximal phalanx of the 'wing-finger' of *Pterodactylus Aclandi.*
20. Outer side view of the proximal end of proximal phalanx of the 'wing-finger' of *Pterodactylus Manselii.*
21. Back or anconal view of the same specimen; 21*. articular surface of ditto.
22. Outer side view of proximal end of proximal phalanx of the 'wing-finger' of *Pterodactylus Pleydellii.*
23. Back or anconal view of the same specimen. 23′. Articular surface of ditto.
24. Articular surface of carpal bone of *Pterodactylus.*
25. Opposite articular surface of the same specimen.
26. Articular surface of homologous carpal bone of another kind of Pterodactyle.
27. Opposite articular surface of the same specimen.
28. Back or anconal view of second phalanx of 'wing-finger' of a Pterodactyle.

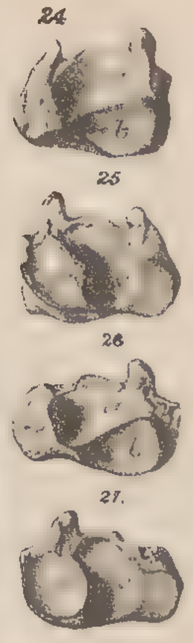
All the figures of the natural size.

The subject of figures 1—4, from the Hastings series of the Wealden, west of St.-Leonard's-on-Sea, Sussex, is in the possession of its discoverer, Samuel H. Beckles, Esq., F.R.S., &c. Those of the following figures are in the British Museum:—5 and 6 are from the Gault at Folkestone; 7, 8, 9, 13, 14, are from the Lias of Lyme Regis, Dorsetshire; 10, 11, 12, 15, 16, 20, 21, 21*, 22, 23, 23′, 24, 25, 26, 27, are from the Kimmeridge Clay, Dorsetshire; 17, 18, 19, 28, are from the Oolitic State, Stonesfield, Oxfordshire.


1
a
b c d e f

2
g
a
b
i h i


3
a
b


24
b
25
26
27.


4
a
b c d e f


5
a b c d e f


20
f

22

7
b

a
10
b

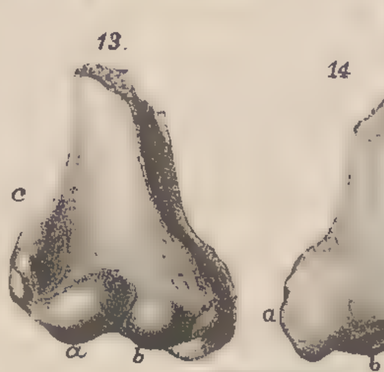
8
c

11
a
b

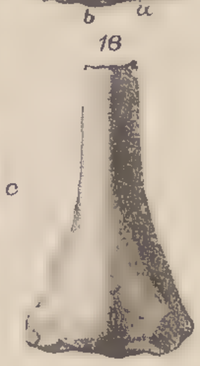

9
b c

12
c b

15
b a


13.
c
a b

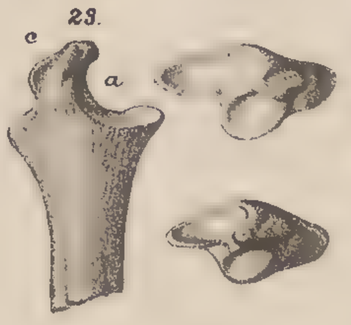
14
c
a b a


16
c

16'
a b

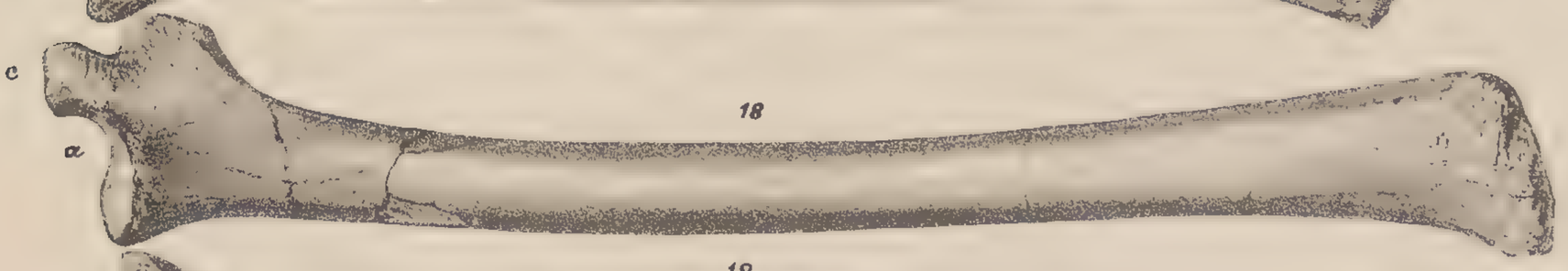

6
a
k

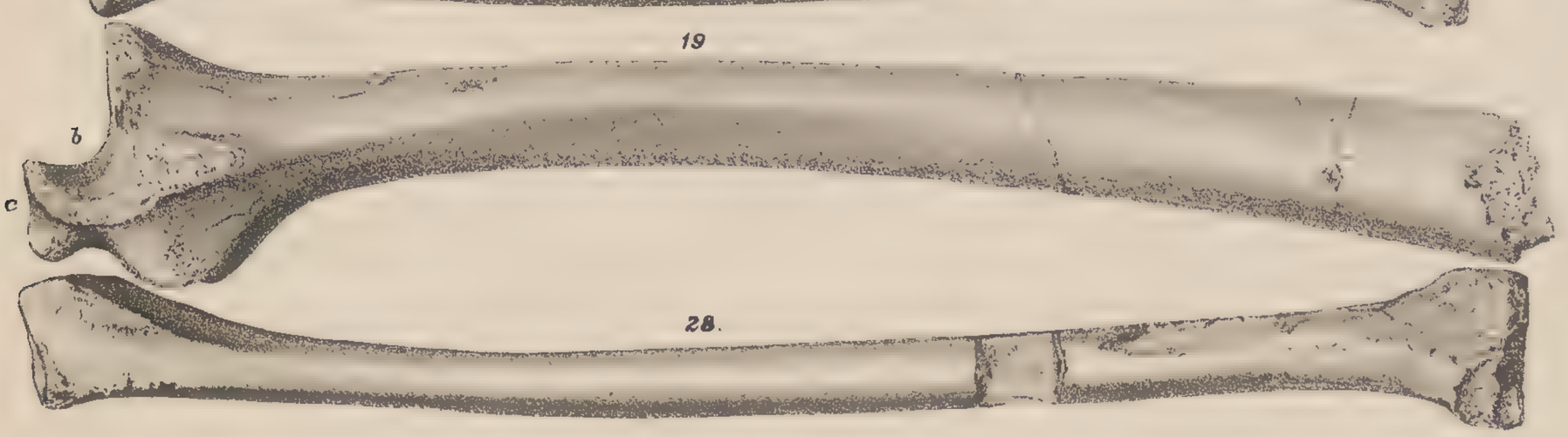

c
21
a


23.
c
a

d
c
b a

c
17


c
a
18


19
b
c
28.

## *Enaliosauria.*

### PLATE 1.

Fig.

1—10, 13—16. Teeth of *Ichthyosaurus campylodon*.

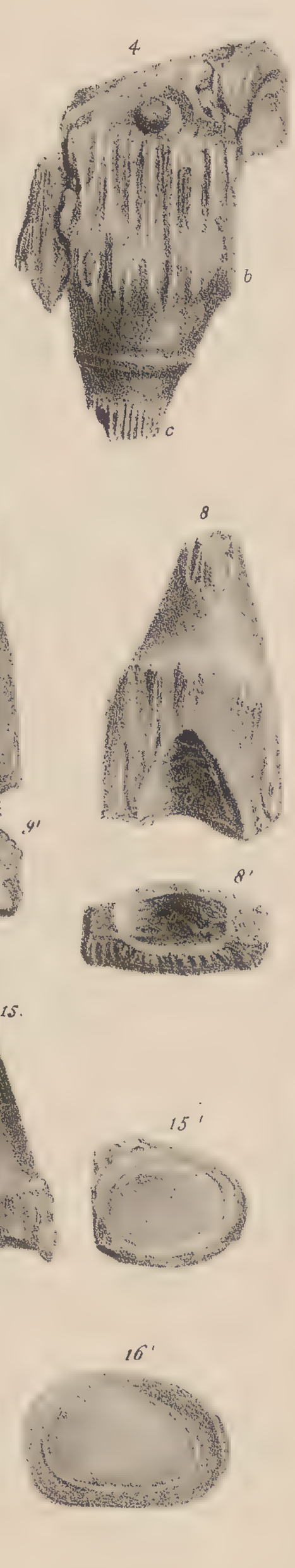
From the Chalk and Green-sand of Cambridgeshire. In the Collection of James Carter, Esq., of Cambridge.

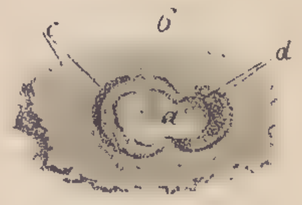
11. Back tooth of a recent Alligator, showing the circular hole made by the absorption consequent on the pressure of a young tooth.

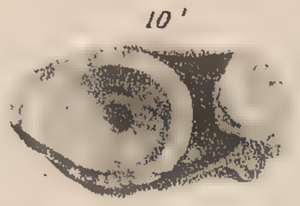
12. Tooth of a recent Crocodile, showing the young tooth, that has penetrated the pulp-cavity of the old tooth.

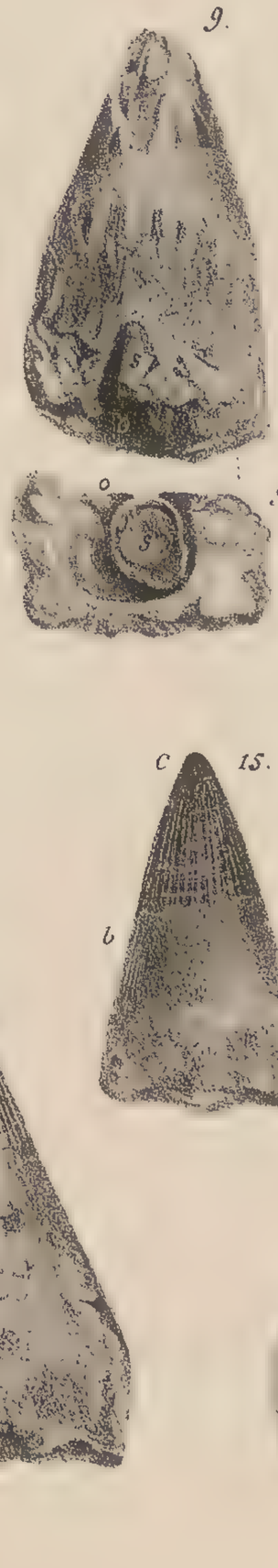
17. Tooth of *Ichthyosaurus communis*, from the Lias of Lyme Regis.

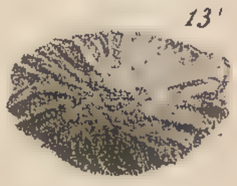
All the figures are of the natural size.

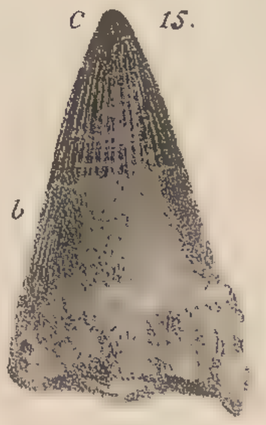










## *Ichthyosaurus campylodon.*

*J. Erxleben, del. et lith.*

*Day & Son, lith. to The Queen.*

## PLATE 2.

*Ichthyosaurus campylodon*, nat. size.

Fig.

1. Side view of a portion of the skull.

2. Upper view of the hinder half of the same portion of skull, showing the extremity of the nasal bones, 15, dipping under the premaxillaries, 22.

From the Lower Chalk, near Cambridge. In the Collection of James Carter, Esq., M.R.C.S.

*Ichthyosaurus campylodon.*

*From Nature on Stone by J. Erxleben.*

*Day & Son, lith.rs to the Queen.*

## PLATE 3.

*Ichthyosaurus campylodon*, nat. size.

Fig.

1. Section of the skull anterior to the maxillary bones.

   15. Nasal bones.

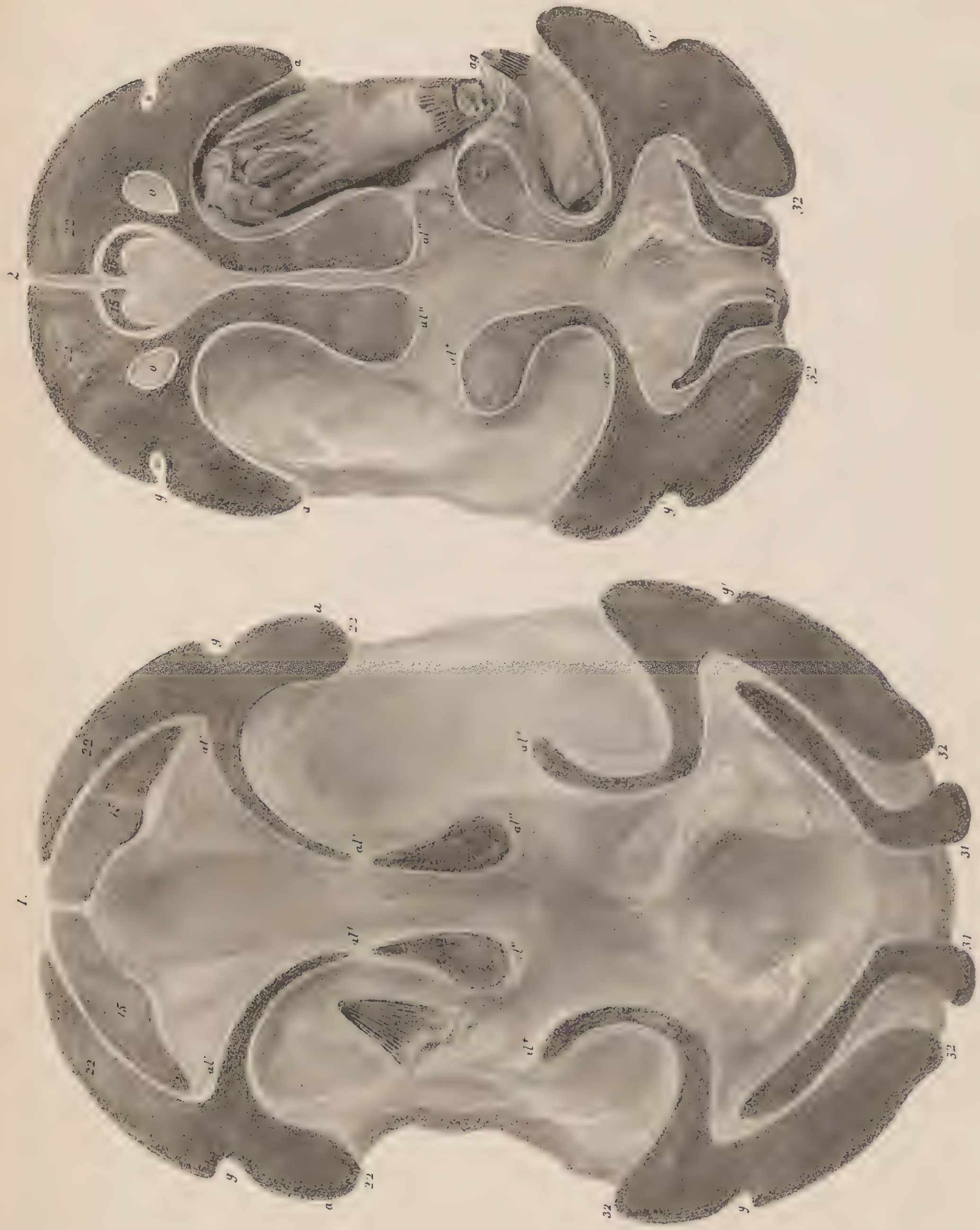
   22. Premaxillaries: *g*, external groove; *al*, origin of the internal alveolar plate; *al'*, where it appears to have been broken; *al''*, thickened terminal border of the plate; *a*, external alveolar wall.

   31. Splenial part of lower jaw.

   32. Dentary part of ditto: *g'*, external groove; *al**, internal alveolar wall.

2. Section of the skull near the termination of the nasal bones 15, 15. *o*, vascular canal: the other letters and figures as in the foregoing figure.

From the lower Chalk of Cambridgeshire. In the Collection of James Carter, Esq., M.R.C.S.




*Nothosaurus cumpylodon.*

*From Nature on Stone by* [illegible]

*Day & Son, lith* [illegible]

## PLATE 4.

### *Ichthyosaurus campylodon*, nat. size.

Fig.

1. Outer side of the dentary bone of the lower jaw.

1*. Form of the section of the fractured end.

2. Inner side of a portion of the right ramus of the same lower jaw, formed by the dentary piece, 32, with the terminations of the splenial pieces, 31.

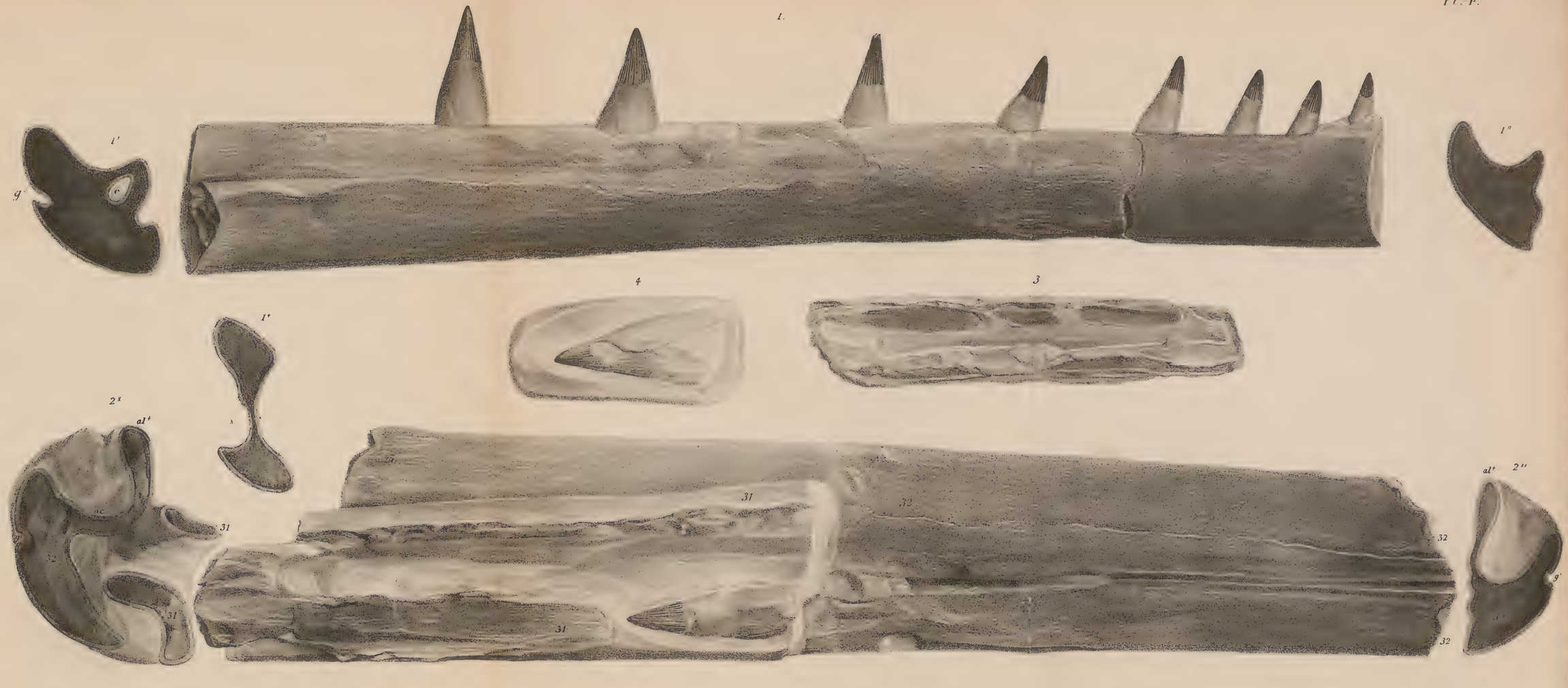
2*. Form of the section of the hinder fractured end.

2**. Form of the section of the fore-part of the same portion.

3. Fragment of a portion of the right premandibular bone.

4. One of the teeth, from the base of which part of the thick cement has been removed.

From the Grey-chalk of the Round-down Tunnel, near Dover. In the Collection of H. W. Taylor, Esq., of Brixton Hill.




*Ichthyosaurus campylodon.*

*J. Erxleben del et lith.*

*Day & Son, Lith.rs to The Queen.*

*Enaliosauria.*

## PLATE 7.

*Ichthyosaurus campylodon*, nat. size.

Fig.

1. Side view of the body or centrum of a vertebra of the trunk.

2. Front view of ditto.

3. Section of a similar vertebra, showing the form and depth of the opposite articular surfaces.

From the Grey-chalk of the Round-down Tunnel, near Dover. In the Collection of H. W. Taylor, Esq., of Brixton Hill.

1

2

3

Ichthyosaurus compressidens.

# TAB. I.

## *Plesiosaurus dolichodeirus.*

Fig.

1. Skeleton (No. 3), 1-10th nat. size.

2. Outline of bones of fore paddle of the skeleton described by CONYBEARE (p. 1), 1-8th nat. size.

3. Outline of bones of hind paddle, ib., ib.

From the Lower Lias of Lyme Regis. In the British Museum.

J. Dinkel, del et

PLESIOSAURUS

# TAB. II.

*Plesiosaurus dolichodeirus.*

Side view of the skull of the skeleton in Tab. I, nat. size.

From the Lower Lias of Lyme Regis. In the British Museum.

J.Dinkel, del. et lith

W.West, imp.

PLESIOSAURUS I OLICHODEIRUS

T. II.

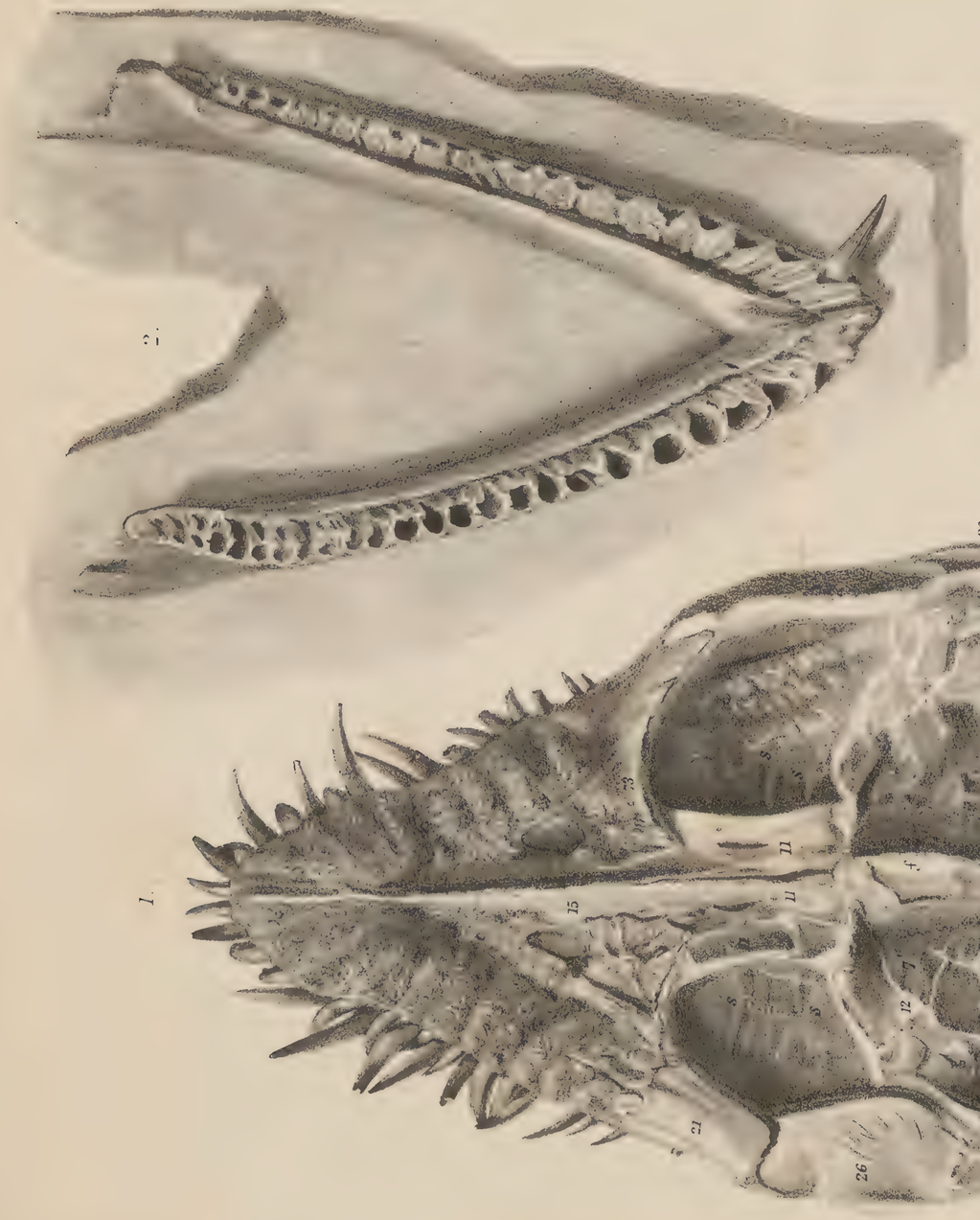
## TAB. III.

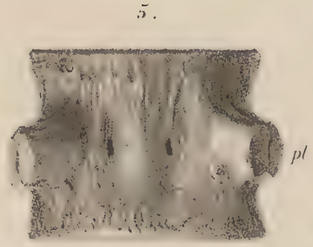
*Plesiosaurus dolichodeirus*, nat. size.

Fig.

1. Skull and seven cervical vertebræ.
2. Dentary elements of lower jaw.
3. Front view of premaxillaries and interlocked fore teeth of both jaws, those of the lower in outline.
4. Middle cervical vertebra, side view.
5. Ib., under view.
6. Ib., front view.

From the Lower Lias of Charmouth. In the British Museum.





J. Dinkel, del et lith.

W. West, imp.

PLESIOSAURUS DOLICHODEIRUS, Cb.

## TAB. IV.

*Plesiosaurus dolichodeirus*, nat. size.

Fig.

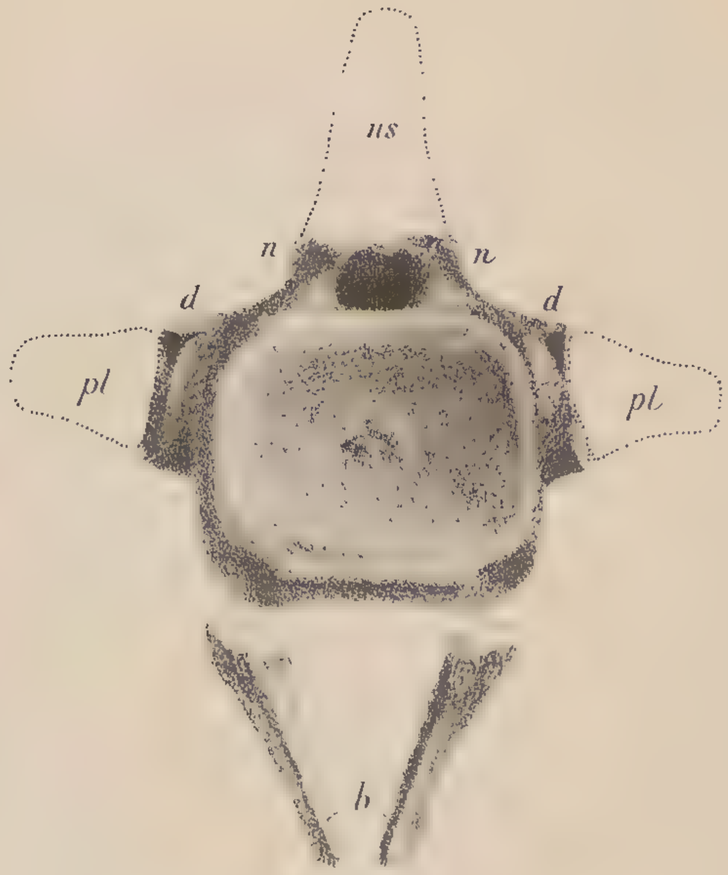
1. Dorsal vertebra, side view.
2. Ib., back view.
3. Tenth caudal vertebra, side view.
4. Ib., under view of centrum.
5. Ib., back view.
6. Twelfth caudal vertebra, side view.
7. Ib., under view of centrum.
8. Ib., back view.
9. Thirtieth caudal vertebra, back view.

From the Lower Lias of Charmouth. In the British Museum.

3.

1.

5.

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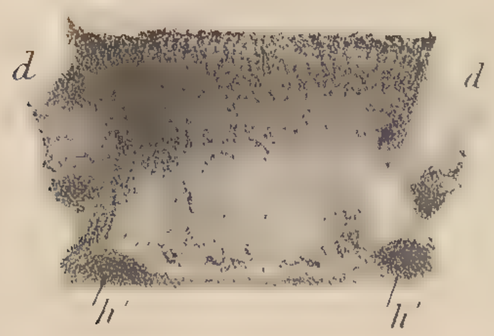


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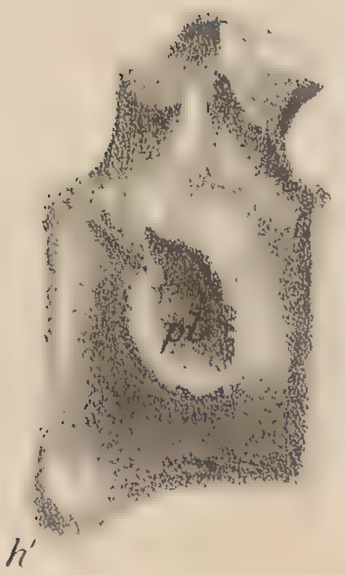
6.

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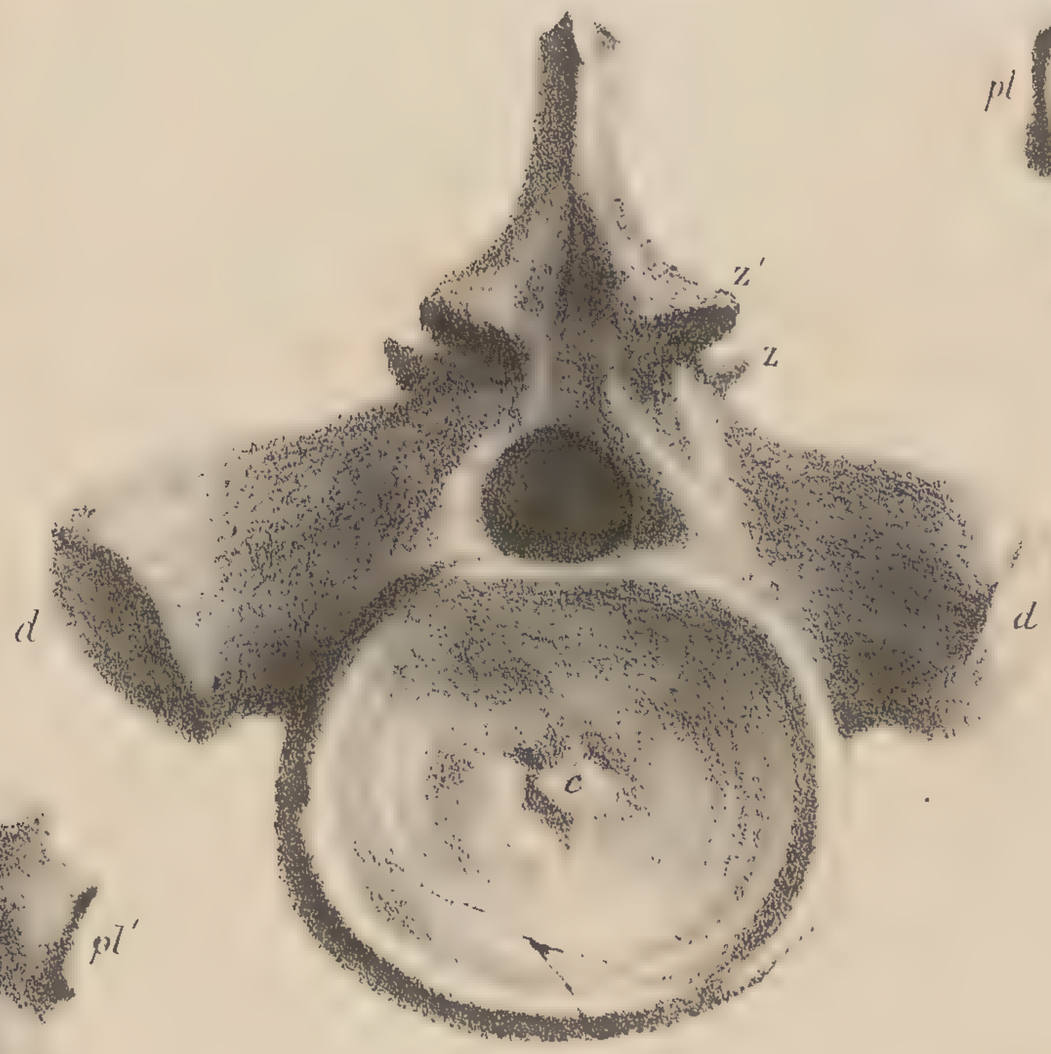
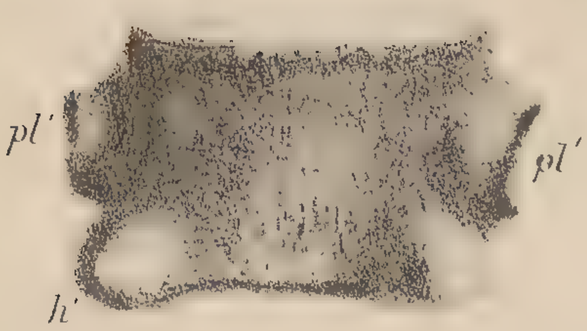



7.




9.

J.Dinkel, del. et lith

W.West, imp

PLESIOSAURUS DOLICHODEIRUS.

# TAB. V.

## *Plesiosaurus homalospondylus.*

Fig.

1. Skeleton, about 1-10th nat. size.

2. Thirteenth cervical vertebra of ditto, side view., nat. size.

2A. Ib., section of neural spine, ib.

3. Ib., posterior surface of centrum, ib.

4. Fourteenth cervical vertebra, under view, ib.

5. Centrum of third cervical vertebra, side view, ib.

6. Ib., posterior surface, ib.

7. Centrum of eighth cervical vertebra, under view, ib.

From the Upper Alum Shale, Lias, Whitby. In the British Museum

2.




2a.



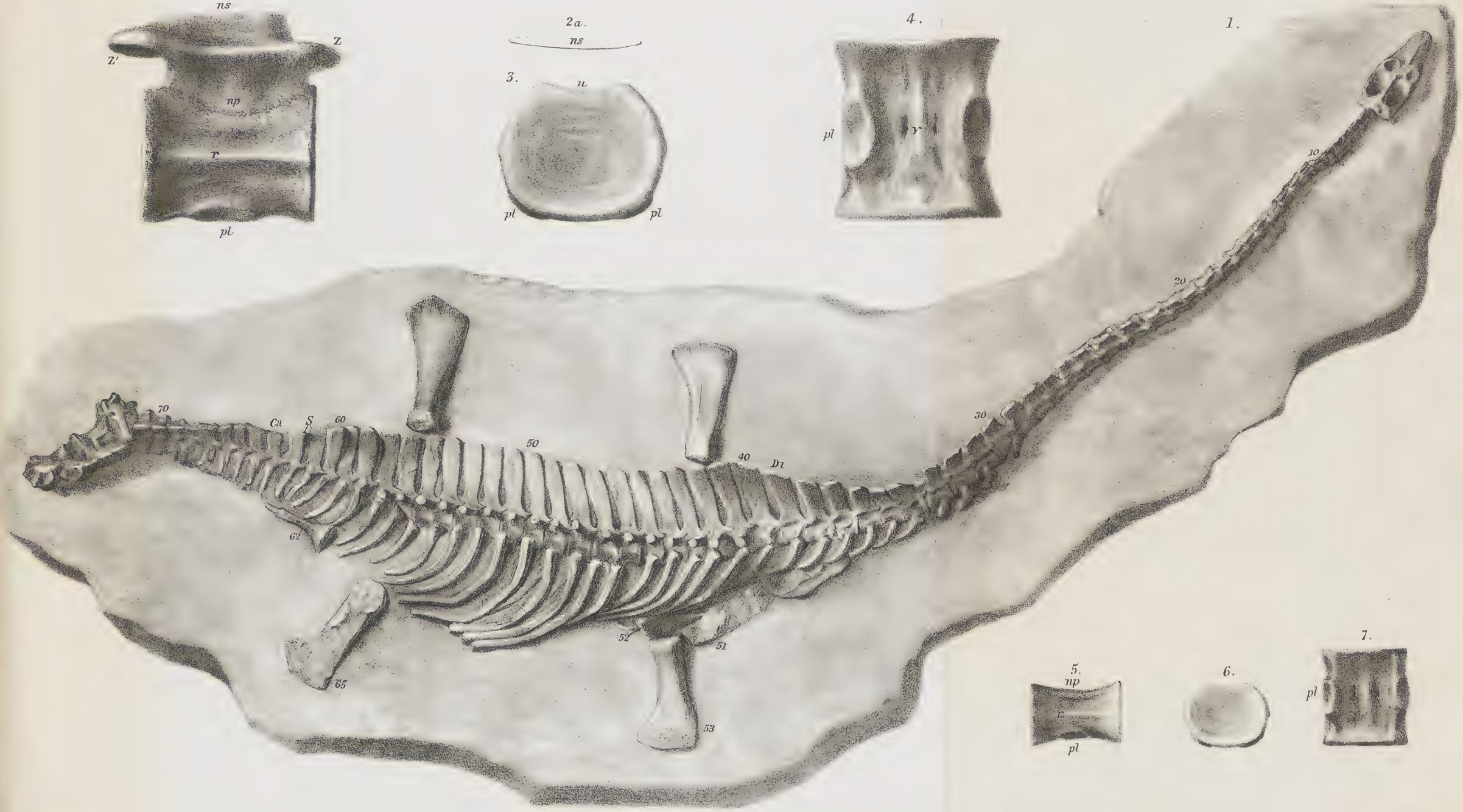

3.




4.




1.




5.




6.



7.




J.Dinkel, del. et lith.

W.West, imp.

0 1 2 feet.

PLESIOSAURUS HOMALOSPONDYLUS.

## TAB. VI.

*Plesiosaurus homalospondylus.*

Upper view of the skull of the skeleton, Tab. V, nat. size.

From the Upper Alum Shale, Lias, Whitby. In the British Museum.

T. VI.

J. Dinkel, del. et lith.

W. West, imp

PLESIOSAURUS HOMALOSPONDYLUS.

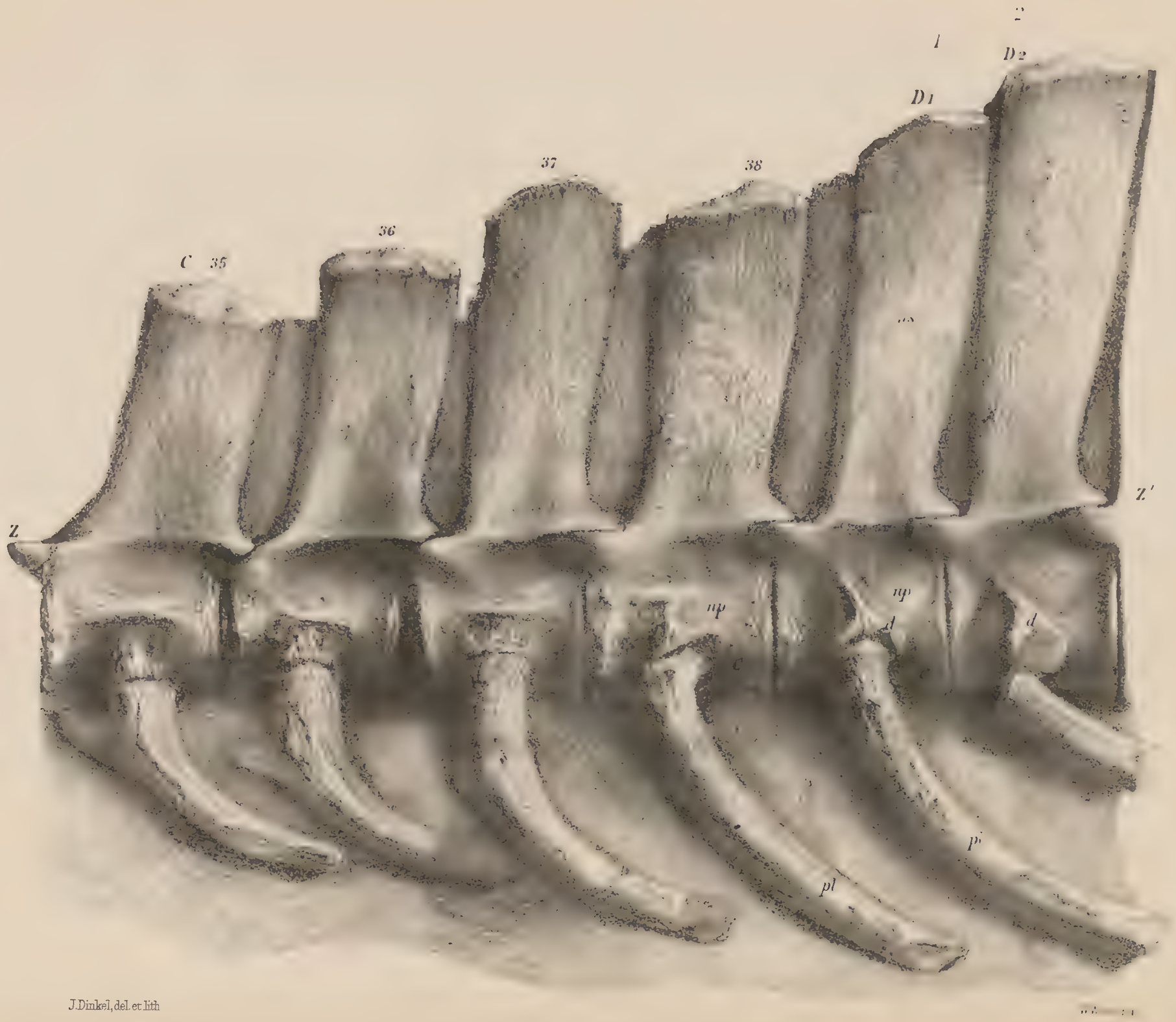
# TAB. VII.

*Plesiosaurus homalospondylus*, half nat. size.

Four last cervical and first two dorsal vertebræ of the skeleton, Tab. V, half nat. size.

From the Upper Alum Shale, Lias, Whitby. In the British Museum.

T. VII.



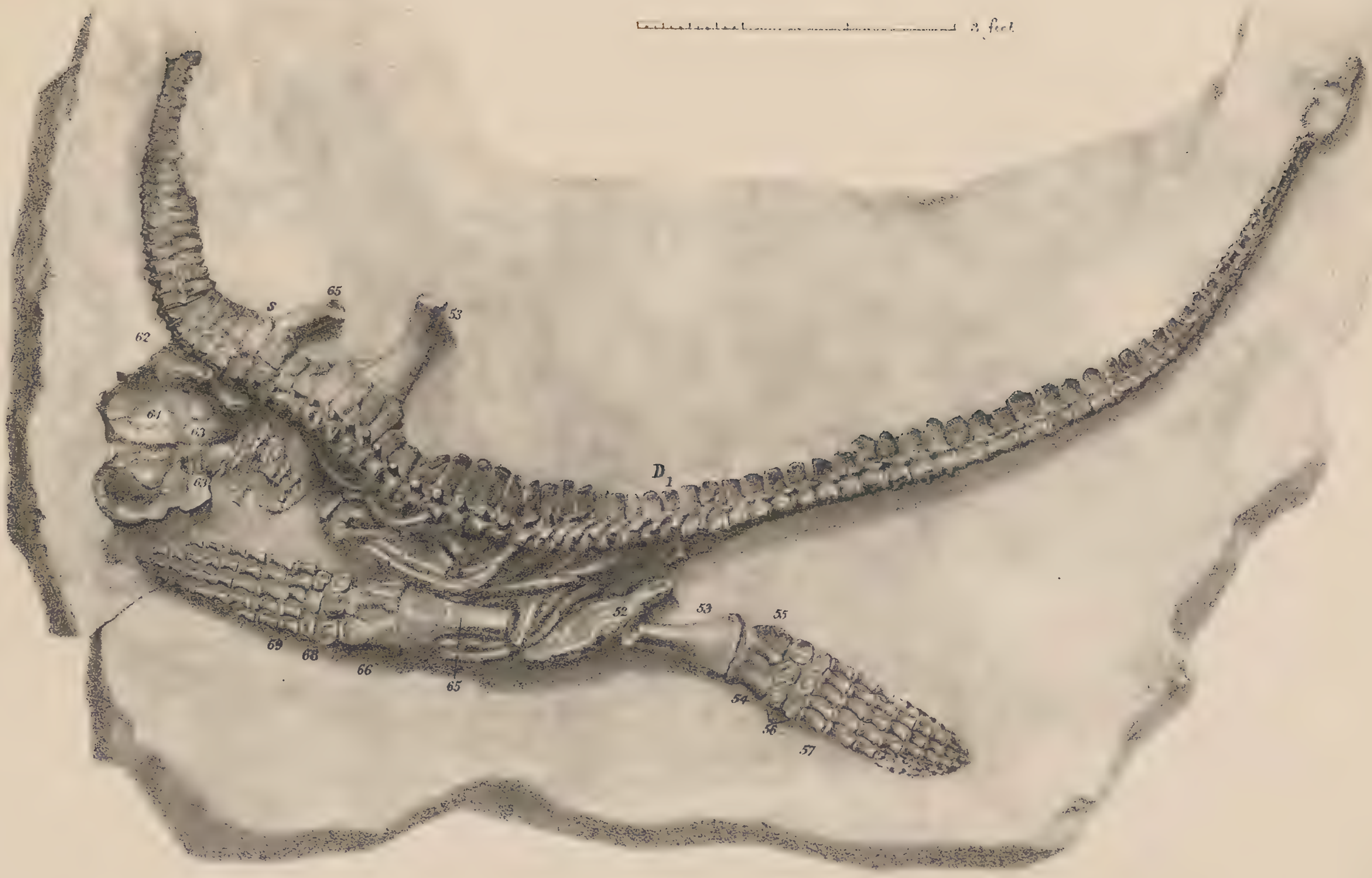

J.Dinkel, del. et lith

PLESIOSAURUS HOMALOSPONDYLUS.

## TAB. VIII.

*Plesiosaurus homalospondylus* (reduced to scale).

From the Upper Alum Shale, Whitby. In the Museum of the Philosophical Society, York.




PLESIOSAURUS HOMALOSPONDYLUS

T. VIII.

W.West,imp

# TAB. IX.

## *Plesiosaurus rostratus.*

Fig.

1. Skeleton (reduced to scale).
2. Right dentary bone and teeth, external and internal surfaces of lower jaw, ib.
3. Crown of the tooth of left dentary, nat. size.
4. Crown of the tooth of left dentary, nat. size.
5. Crown of fourth tooth of right dentary, nat. size.
6. Crown of hind tooth of left dentary, nat. size.
7. Crown of sixth tooth of right dentary, nat. size.
8. Crown of hind tooth of right dentary, nat. size.
9. Crown of ninth tooth of left dentary, nat. size.

From the Lower Lias of Charmouth. In the British Museum.

J. Dinkel, del. et lith.

W. West, imp.

PLESIOSAURUS ROSTRATUS.

## TAB. X.

*Plesiosaurus rostratus*, nat. size.

Fig.

1. Side view of the fifteenth cervical vertebra.

1A. Section of neural spine.

2. Posterior articular surface of centrum of cervical vertebra.

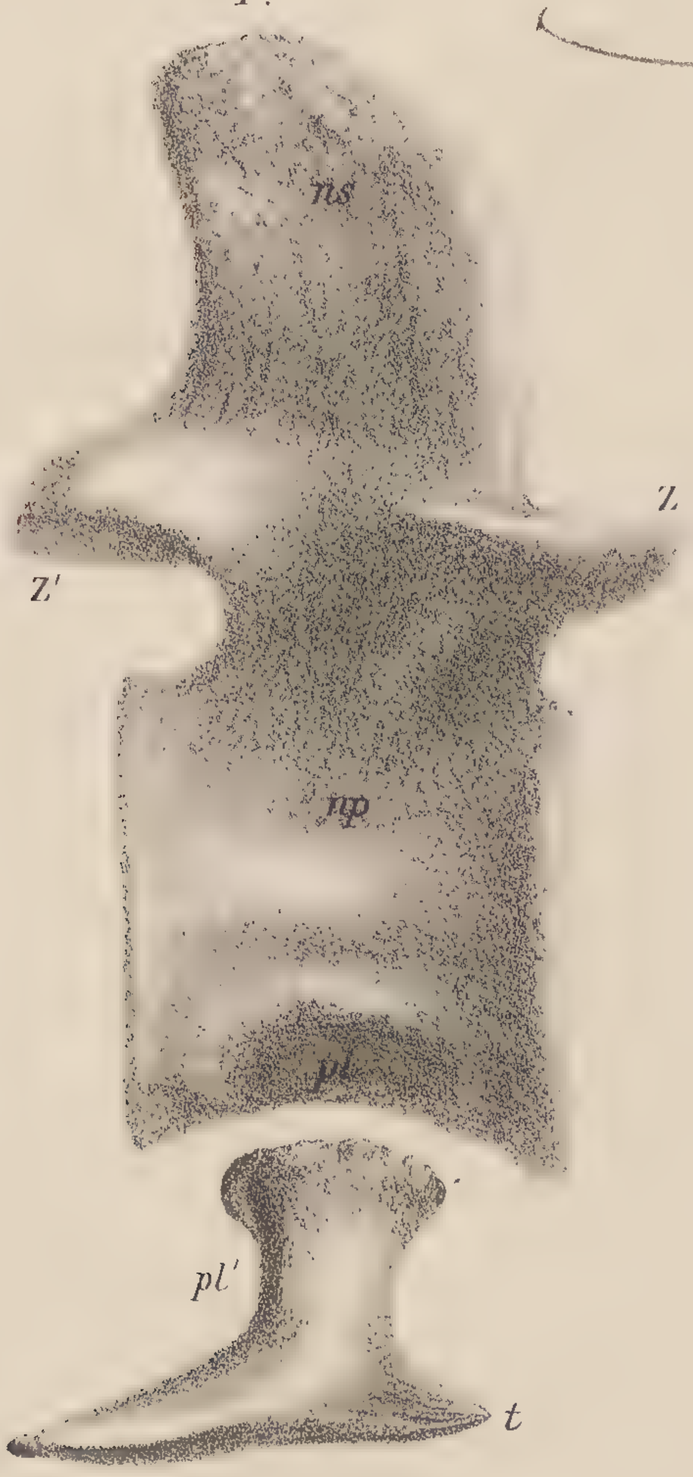
3. Inferior surface of centrum and pleurapophyses.

4. Posterior articular surface of centrum of cervical vertebra.

From the Lower Lias of Charmouth. In the British Museum.

1a.

1.

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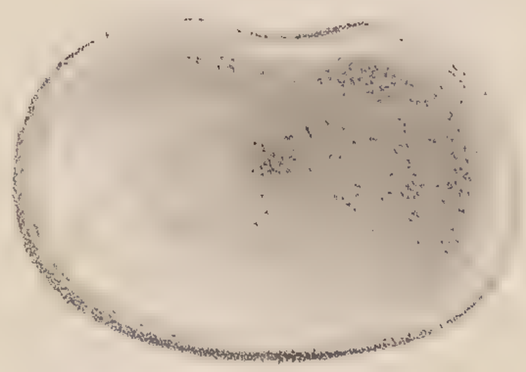

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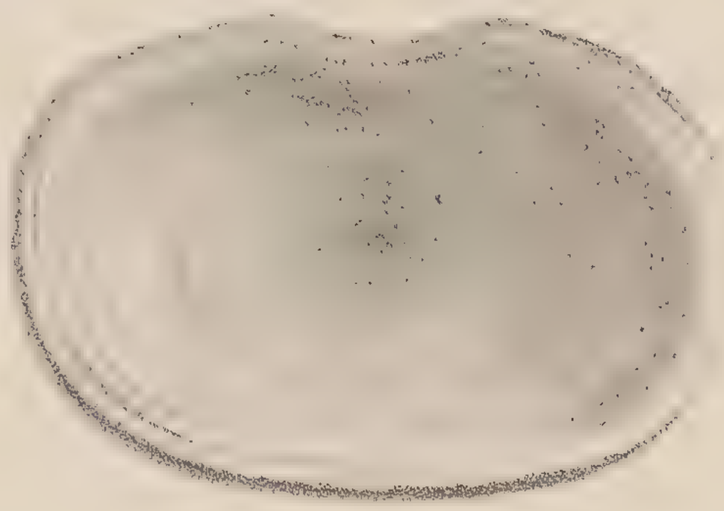

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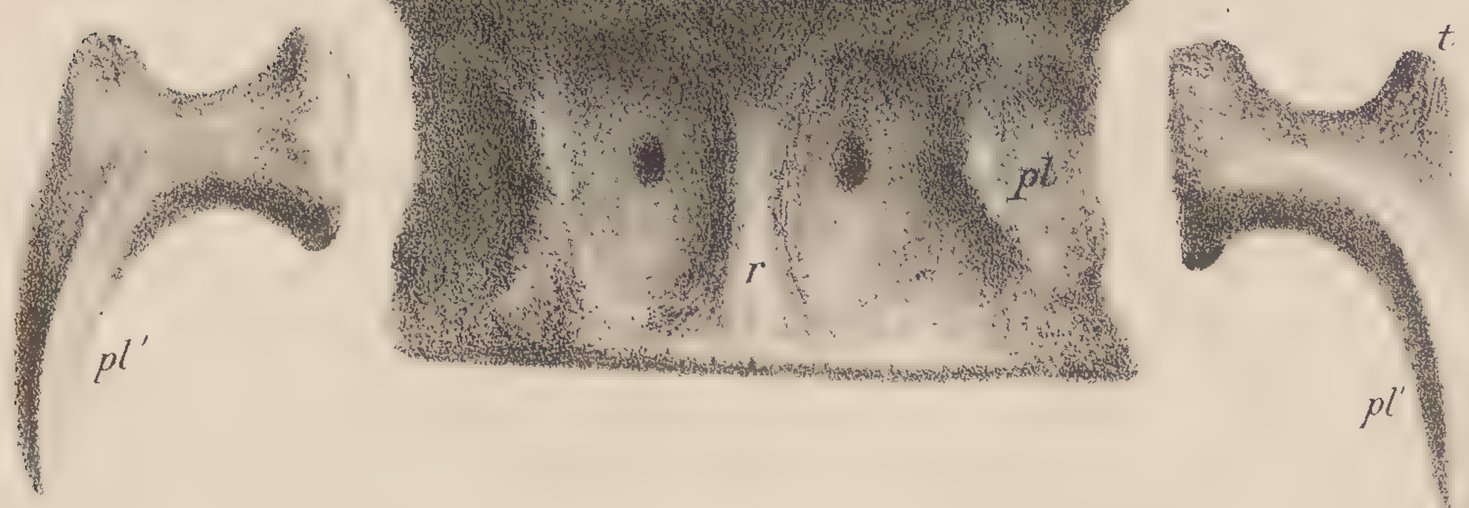



J. Dinkel, del. et lith

W. West, imp

PLESIOSAURUS ROSTRATUS.

## TAB. XI.

*Plesiosaurus rostratus*, nat. size.

Fig.

1. Side view of the sixteenth, seventeenth, and eighteenth cervical vertebræ, partially dislocated.

2. Under view of ditto.

From the Lower Lias of Charmouth. In the British Museum.

1.

2.

J.Dinkel, del. et lith.

W.West imp.

PLESIOSAURUS ROSTRATUS.

## TAB. XII.

*Plesiosaurus rostratus*, nat. size.

Side view of the five last cervical and first dorsal vertebræ.

From the Lower Lias of Charmouth. In the British Museum.

J. Di[illegible]el, del. et lith.

PLESIOSAURUS [illegible]

# TAB. XIII.

*Plesiosaurus rostratus*, nat. size.

Fig.

1. Upper view of basal portion of skull.

2. Under view of ditto.

From the Lower Lias of Charmouth. In the British Museum.

J. Dinkel, del. et lith.

W. West, imp.

PLESIOSAURUS ROSTRATUS.

# TAB. XIV.

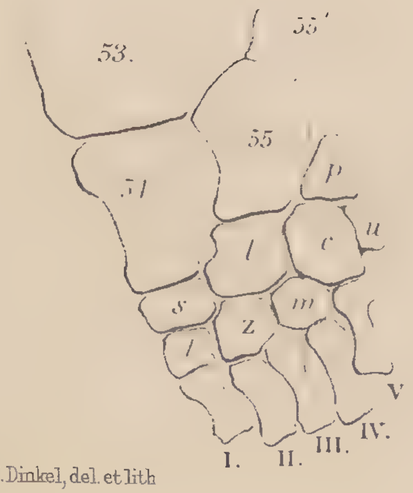
Fig.

1. Skeleton of *Plesiosaurus rugosus*, 1-14th nat. size.
2. Bones of forearm, carpus, and metacarpus, of ditto; in outline, 1-6th nat. size.
3. Bones of leg, tarsus, and metatarsus, of ditto; in outline, 1-6th nat. size.
4. Bones of forearm, carpus, and metacarpus, of *Plesiosaurus macrocephalus;* in outline, 1-6th nat. size.
5. Bones of forearm, carpus, and metacarpus, of *Plesiosaurus dolichodeirus;* in outline, 1-6th nat. size.
6. Bones of forearm, carpus, and metacarpus, of *Plesiosaurus Hawkinsii;* in outline, 1-6th nat. size.

The skeleton of the *Plesiosaurus rugosus* is from the Lower Lias of Leicestershire. In the British Museum.

1.

2.

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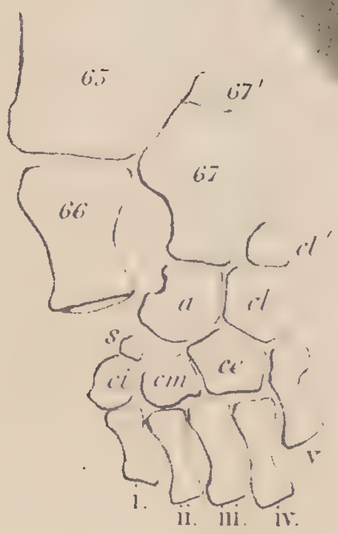


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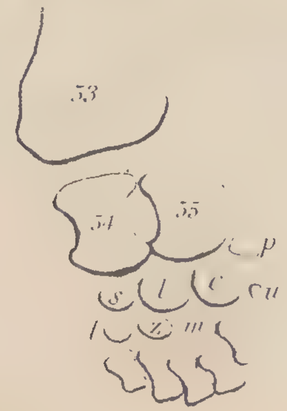


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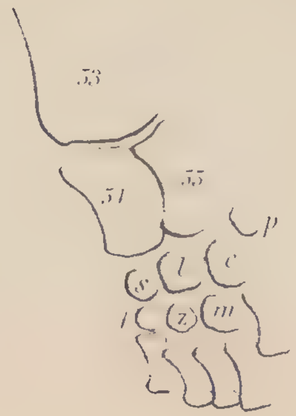


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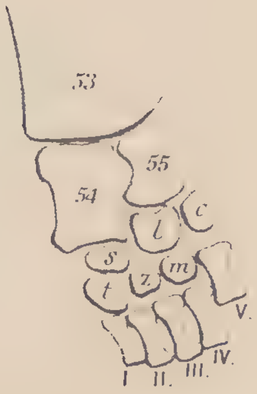



J. Dinkel, del. et lith

W. Westermann imp

PLESIOSAURUS RUGOSUS.

## TAB. XV.

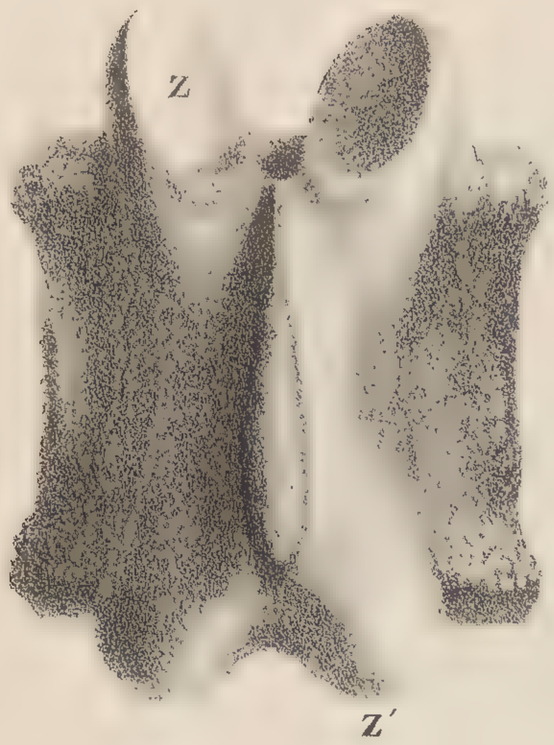
*Plesiosaurus rugosus*, nat. size.

Fig.

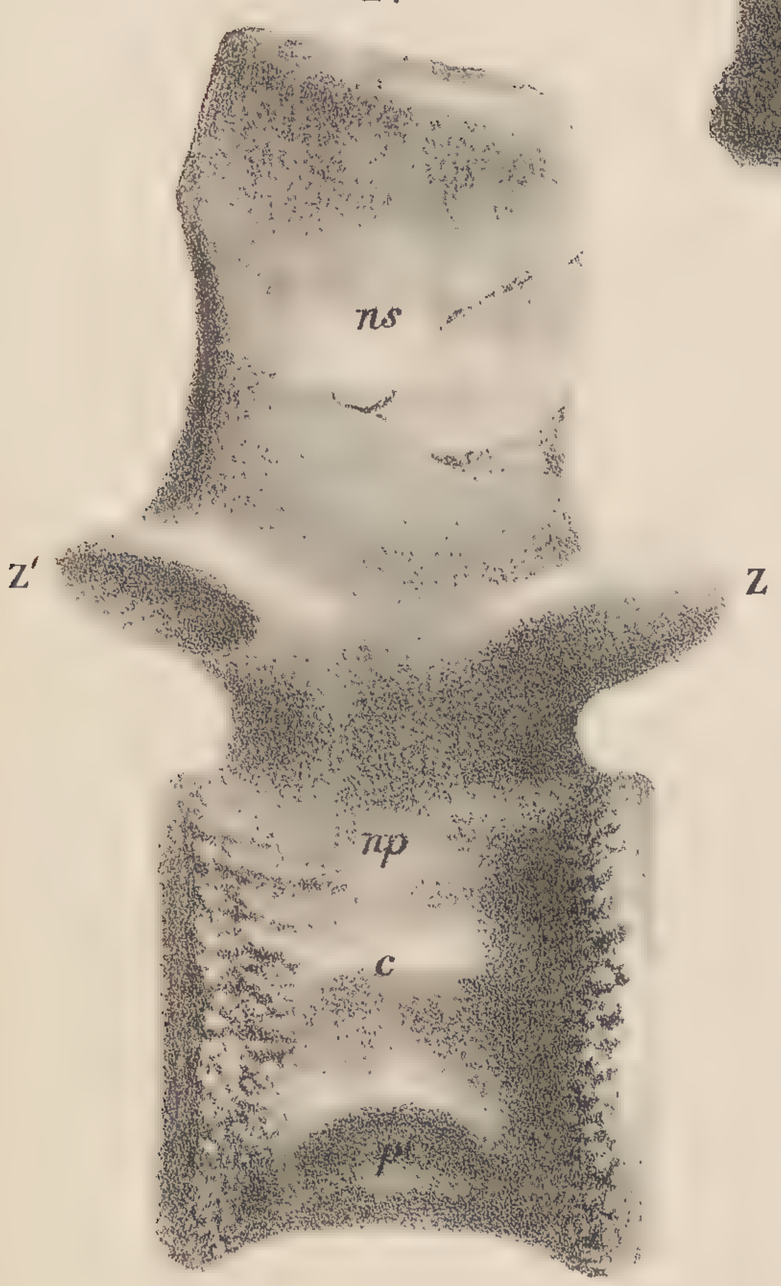
1. Side view of the fifteenth cervical vertebra.
2. Front view of ditto.
3. Under view of ditto.
4. Upper view of ditto.

From the Lower Lias of Leicestershire. In the British Museum.

4.

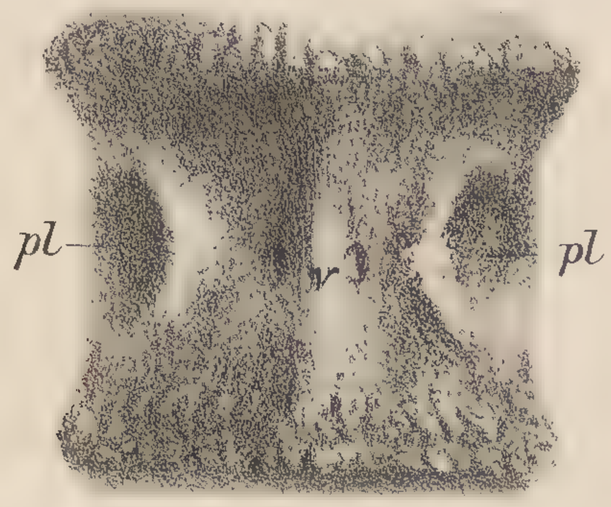



1.




2.

3.




J.Dinkel, del. et lith.

W.West, imp.

PLESIOSAURUS RUGOSUS.

## TAB. XVI.

*Plesiosaurus Hawkinsii*, nat. size.

Fig.

1. Oblique side view of skull.
2. Under view of skull.

In comparison with the skull of *Plesiosaurus dolichodeirus*, Tabs. II and III, these figures exemplify the specific distinction of *Ples. Hawkinsii* in the greater longitudinal extent of the temporal fossæ, and in the greater relative length and slenderness of the muzzle or facial part of the skull, the sides of which converge at a more acute angle and are more concave. The symphysis of the mandible is longer in *Pl. Hawkinsii*. The teeth in both jaws are relatively larger and longer in *Plesiosaurus dolichodeirus*. As compared with *Plesiosaurus rostratus*, Tabs. IX and XIII, the facial part of the skull is relatively shorter in *Plesiosaurus Hawkinsii*; the pterygoids do not extend quite so far back; the "palatonares," Tab. XVI, fig. 2, *r*, *r*, are smaller, with more rounded ends of the ellipse.

The following bones are indicated by the figures:

1. Basi-occipital.
2. Par-occipital.
7. Parietal (near the "foramen parietale").
7′. Ib., "supra-mastoid process."
8. Mastoid.
11. Frontal.
15. Nasal (above the external nostril).
20. Palatine.
24. Pterygoid.
25. Ecto-pterygoid.
26. Malar.
27. Squamosal.
28. Tympanic.
31. Angular.
31′. Splenial.
33. Dentary.

The skulls here figured are from the Lias of Street, Somersetshire. In the British Museum.

1.

2.

J. Dinkel, del. et lith.

PLESIOSAURUS HAWKINSII.

## PLATE 17.

Skeleton of *Plesiosaurus macrocephalus ;* one sixth natural size : see p. 177, Vol. III.

From the Lower Lias of Lyme Regis.

G. Scharf del et lithog

*Plesiosaurus macrocephalus*

## PLATE 15.

Skeleton of *Plesiosaurus brachycephalus;* one ninth natural size. Wanting bones of the fins : see p. 178, Vol. III.

From the Lower Lias of Charmouth.

*Plesiosaurus brachycephalus.*

*Day & Hughes*

## PLATE 26.

Cervical Vertebra of *Plesiosaurus Bernardi*, nat. size.

Fig.

1. Front view.
2. Back view of spinous process.
3. Side view.
4. Under view.

From the Upper Chalk of Sussex. In the Collection of the late Fred. Dixon, Esq., F.G.S., of Worthing.

3.

*n*

*z*

*z*

*cp*

*ca*

*pl*

1

2.

*n*

*pl*

1.

*pl*

*Fossil Reptilia from the Chalk.*

Drawn from Nature by G.S.Sharf

Day & Son Lith.rs to the Queen

*Enaliosauria.*

## PLATE 27.

Cervical vertebra of another species of *Plesiosaurus*.

From the Chalk of Kent. In the Collection of Mrs. Smith, of Tonbridge Wells.

3

*ns*

*pl*

2

*c*

*c*

*pl*

1

*ns*

*x*

*pl*

*Plesiosaurus from the Chalk*

PLATE 28.

*Plesiosaurus pachyomus*, nat. size.

Fig.

1. Side view of centrum of a middle cervical vertebra.

2. Front view of ditto.

3. Side view of centrum of a more posterior cervical vertebra.

4. Front view of ditto.

5. Side view of centrum of penultimate cervical vertebra.

6. Front view of ditto.

*pl.* Pleurapophysial surface.

*np.* Neurapophysial surface.

From the Green-sand, near Cambridge. In the Collection of James Carter, Esq., M.R.C.S.

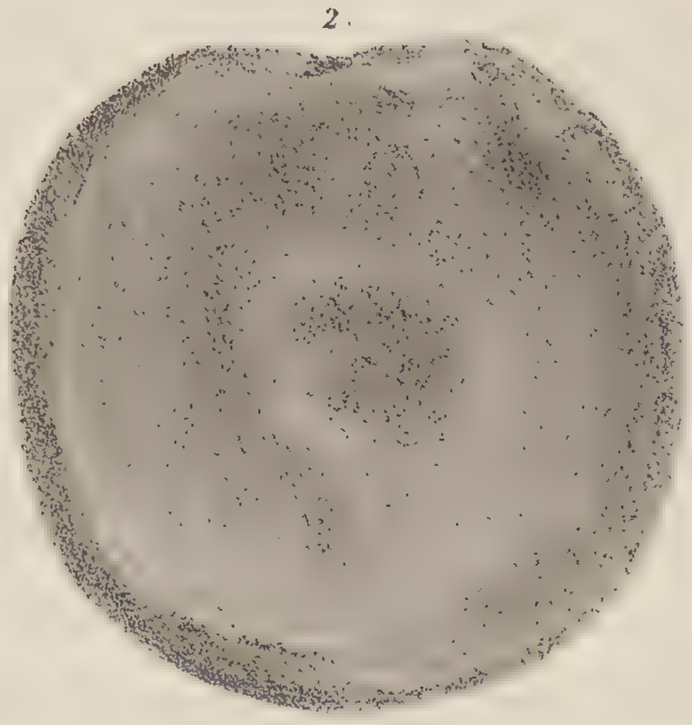
7. Three views of part of a tooth of a Plesiosaurus.

8. Portion of a similar tooth.

From the Green-sand, near Shanklin, Isle of Wight.

1

2.

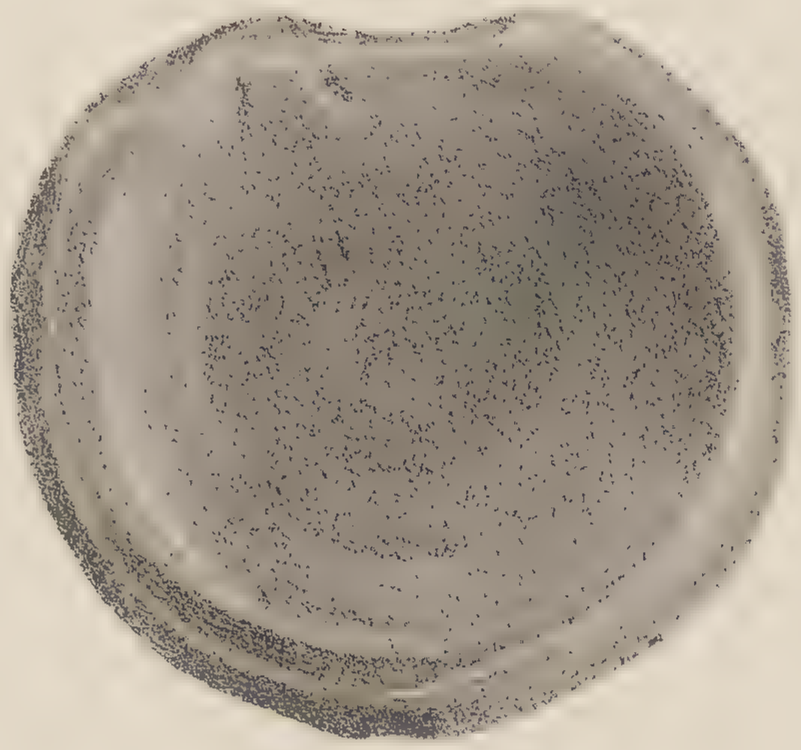


7

3

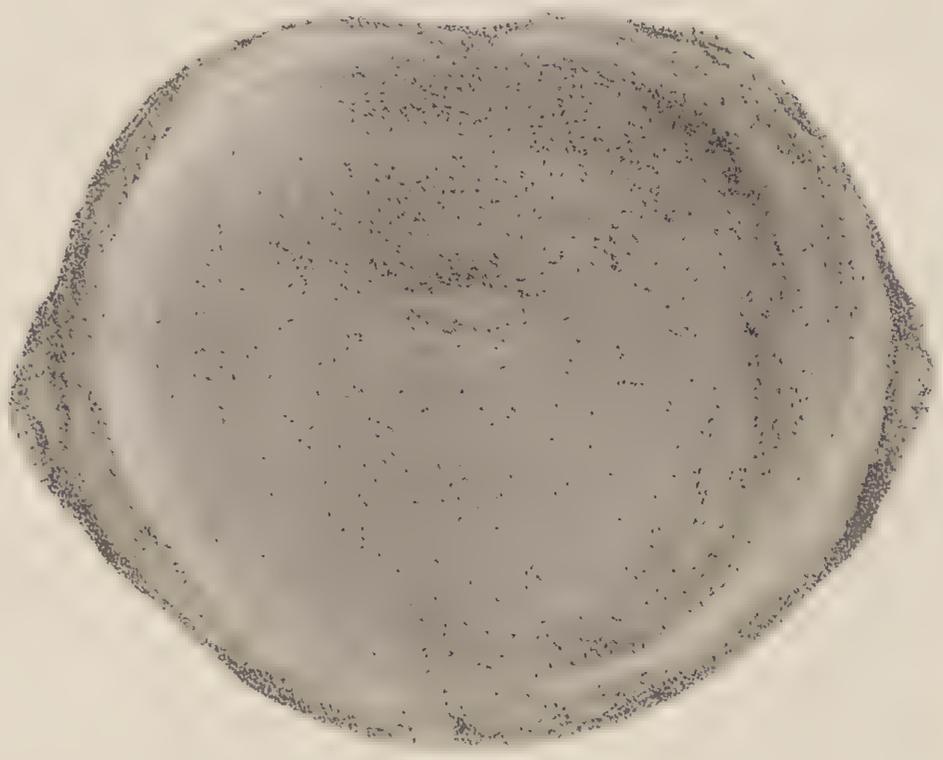
8

4.



5.

6.



From Nature on Stone by J. Erxleben

*Ichthyosaurus platyodon.*

PLATE 29.

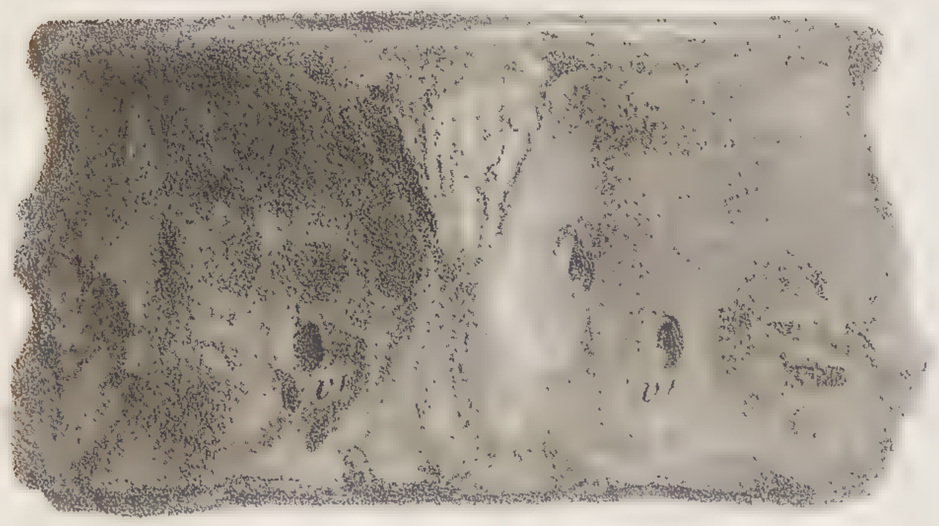
## *Plesiosaurus pachyomus*, nat. size.

Fig.

1. Side view of centrum of dorsal vertebra.
2. Under view of ditto.
3. Upper view of ditto.
4. Upper view of the centrum of a smaller dorsal vertebra.
5. A section through the centrum of a small dorsal vertebra, showing the course of the vertical venous canals.
6. Under view of a caudal vertebra.

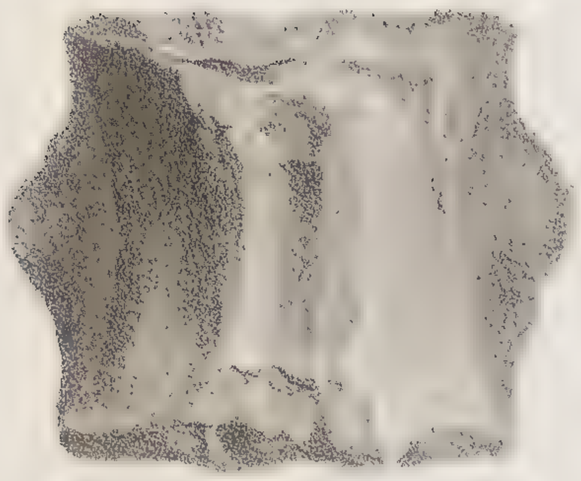
From the Green-sand, near Cambridge. In the Collection of James Carter, Esq., M.R.C.S.

2




1.

6.



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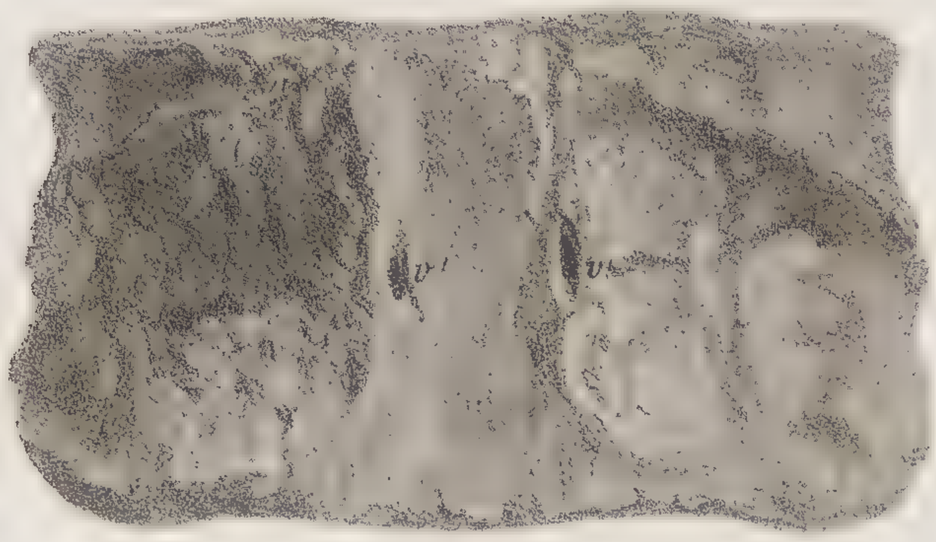


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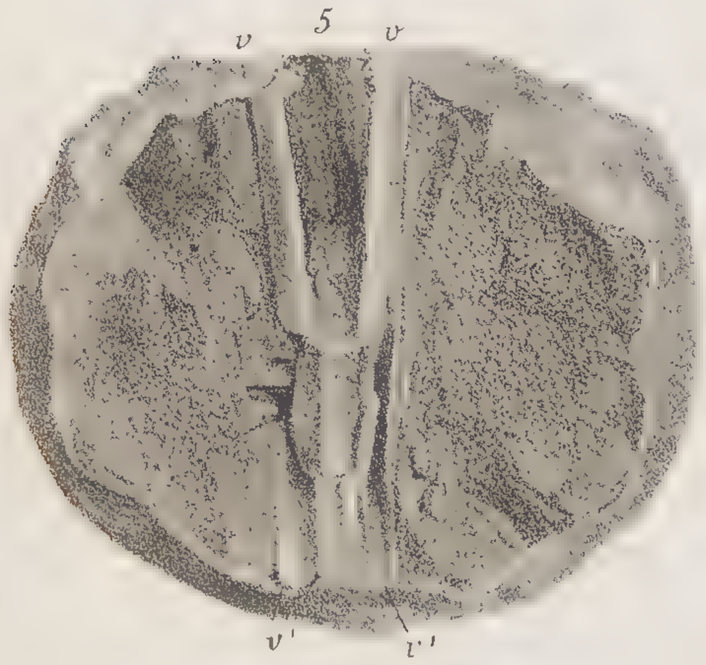


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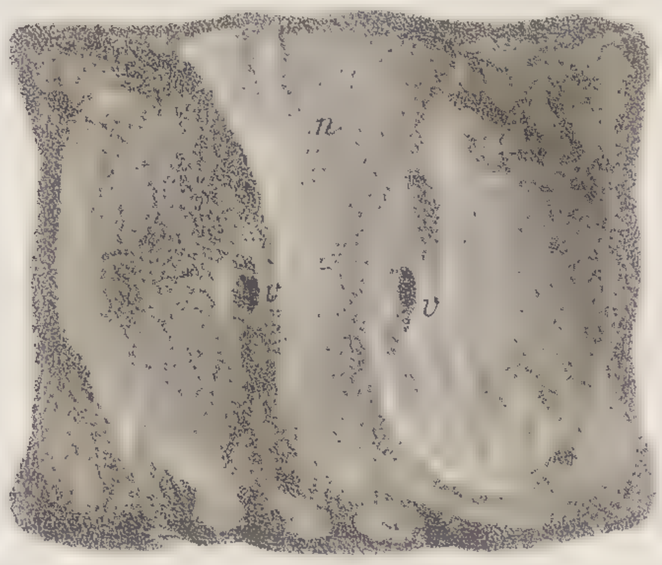



J Erxleben del.et lith

*Plesiosaurus pachyomus.*

Day & Son, Lith^rs to The Queen

*Enaliosauria.*

PLATE 30.

Portion of the paddle of a large *Plesiosaurus,* nat. size.

From the Chalk of Kent. In the Collection of Mrs. Smith, of Tonbridge Wells.

*Plesiosaurus.*

# PLATE 31.

## Enaliosauria.

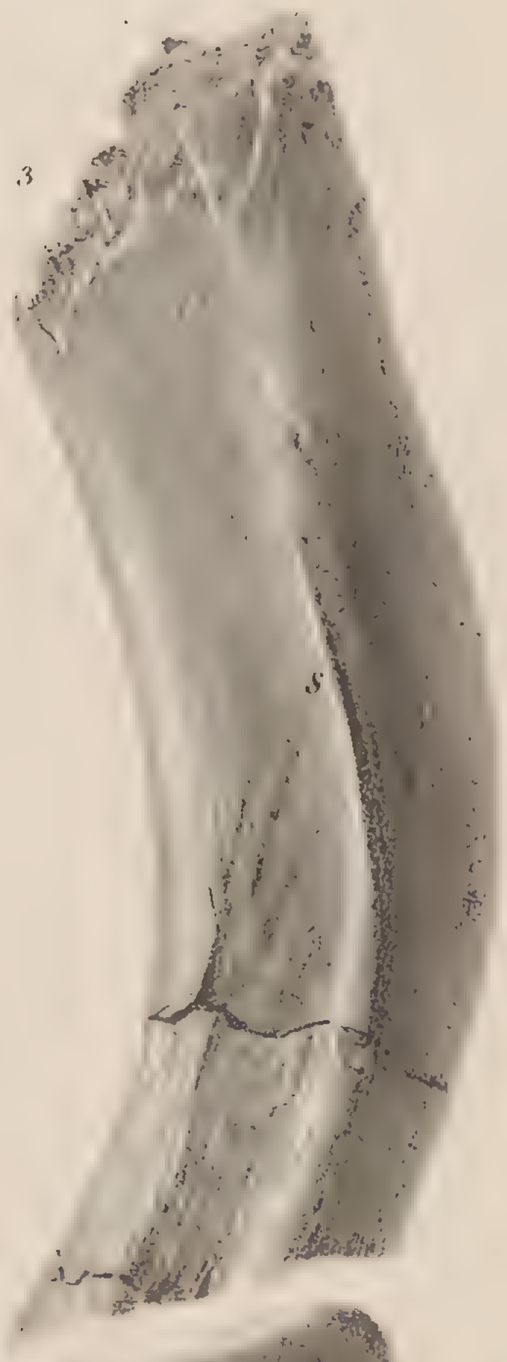
Fig.

1 and 2. Cervical vertebra, *Polyptychodon.*

3. Portion of rib, ib.

From the Upper Greensand of Cambridgeshire.

1
n
pl


3
s

2
pl

# PLATE 32.

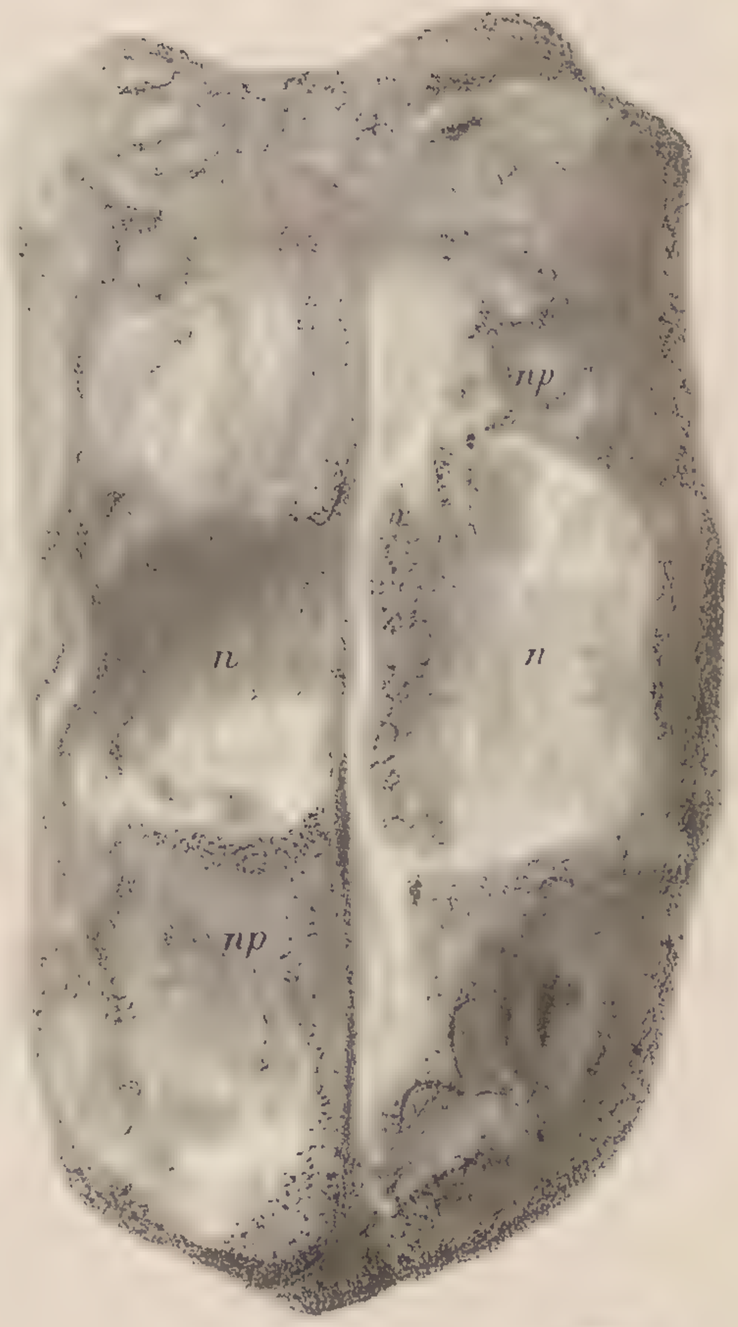
## Enaliosauria.

Atlas and axis vertebræ, *Polyptychodon*.

From the Upper Greensand of Cambridgeshire.

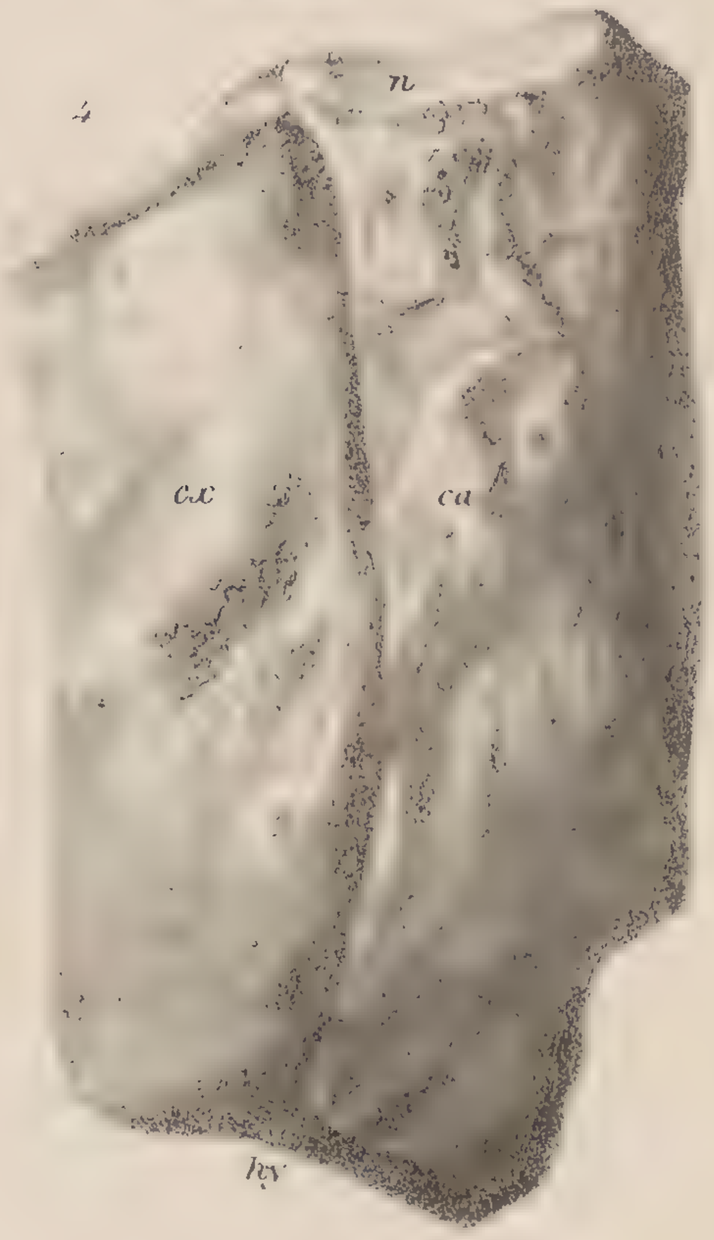
1

3




2

4



# TAB. XVII.

## ICHTHYOSAURUS.

*Typical vertebræ.*

FIG.

1. First or atlas vertebra.
2. Trunk-vertebra.
3. Pelvic vertebra.
4. Caudal vertebra.
5. Terminal or pinnigerous vertebra.

(These figures are less than the natural size.)

6. Neural arches of trunk-vertebræ, side view.
7. Portions of pleurapophyses of trunk-vertebræ, outer side view.

(These figures are of a small specimen, natural size.)

A.Gawan del. et lith.

Hanhart imp

ICHTHYOSAURUS.
TYPICAL VERTEBRÆ

# TAB. XVIII.

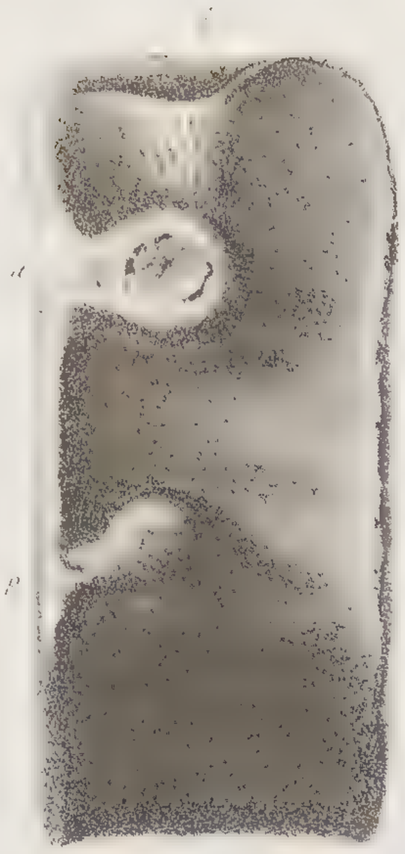
## Ichthyosaurus.

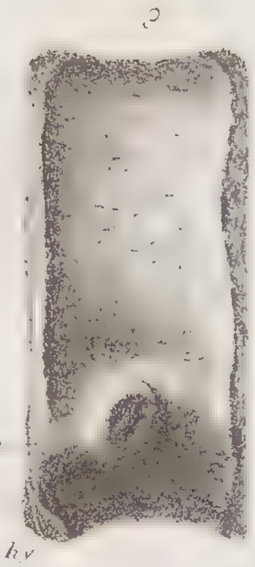
*Vertebral centrums;* regional characters.

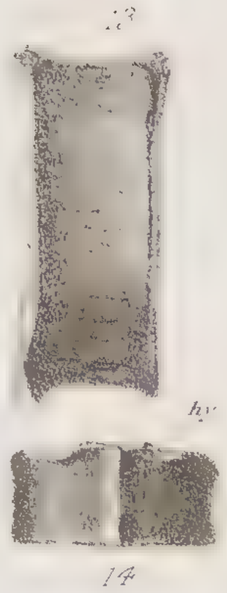
Fig.

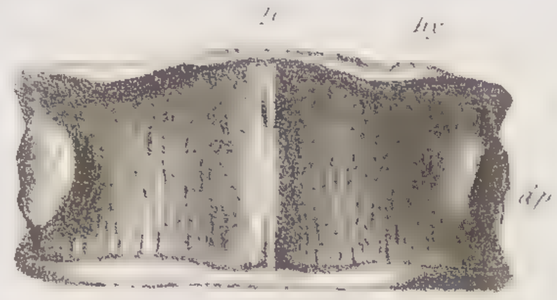
1. Anterior trunk-vertebra, side view.
2. Ib. upper view.
3. Ib. front view.
4. Middle trunk-vertebra, side view.
5. Ib. upper view.
6. Ib. vertical transverse section.
7. Posterior trunk-vertebra, side view (*Ich. latimanus*).
8. Ib. front view (ib.).
9. Caudal vertebra, side view.
10. Ib. under view.
11. Ib. front view.
12. Posterior caudal vertebra, side view.
13. Ib. from base of pinnigerous portion, side view (*Ich. latimanus*).
14. Ib. under view.

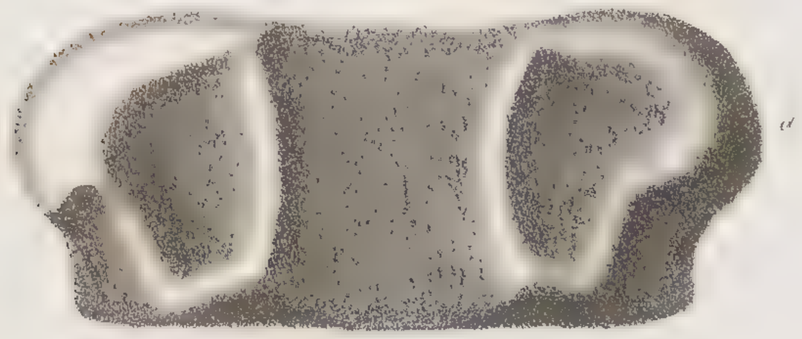
(All the figures are of the natural size.)

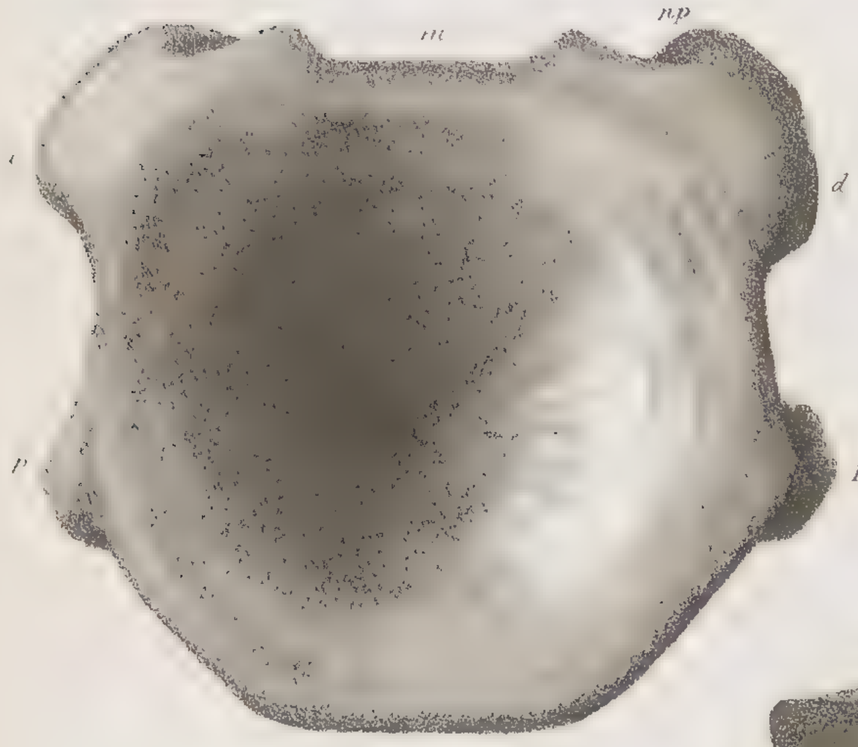


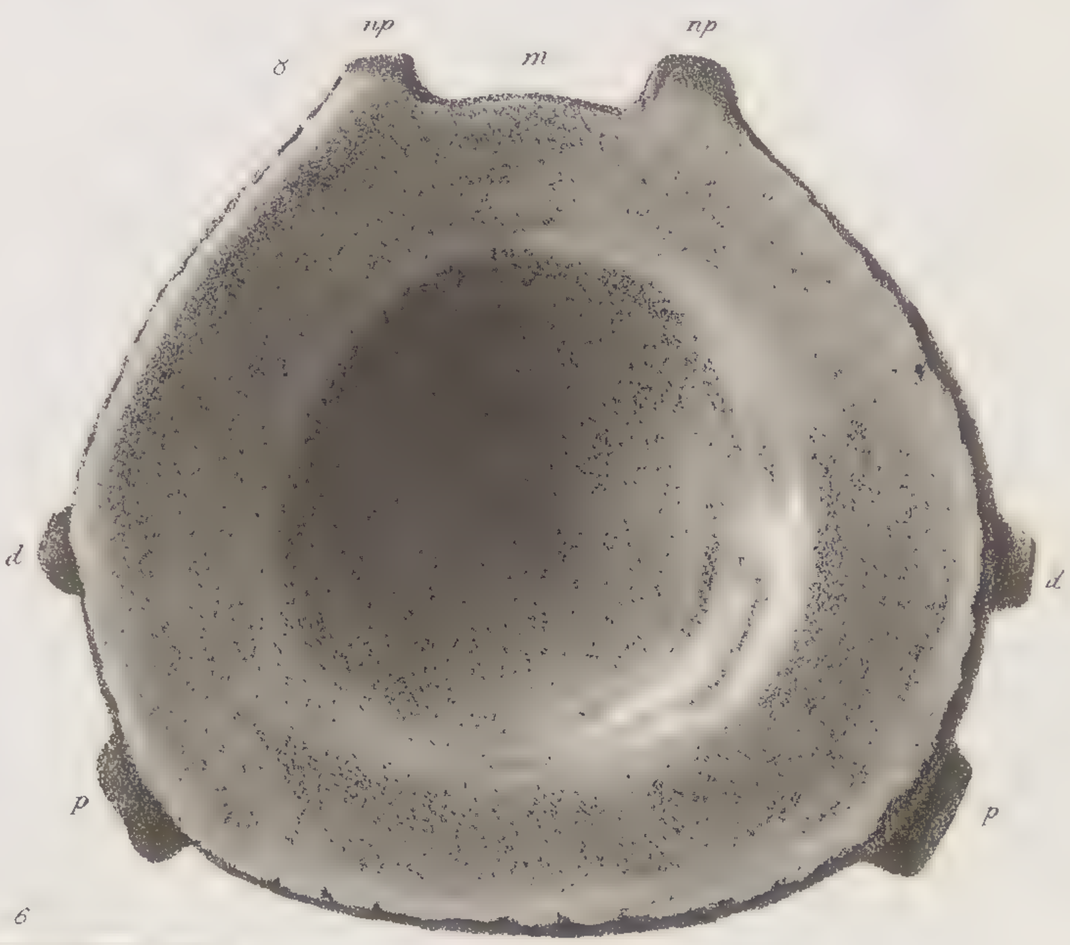


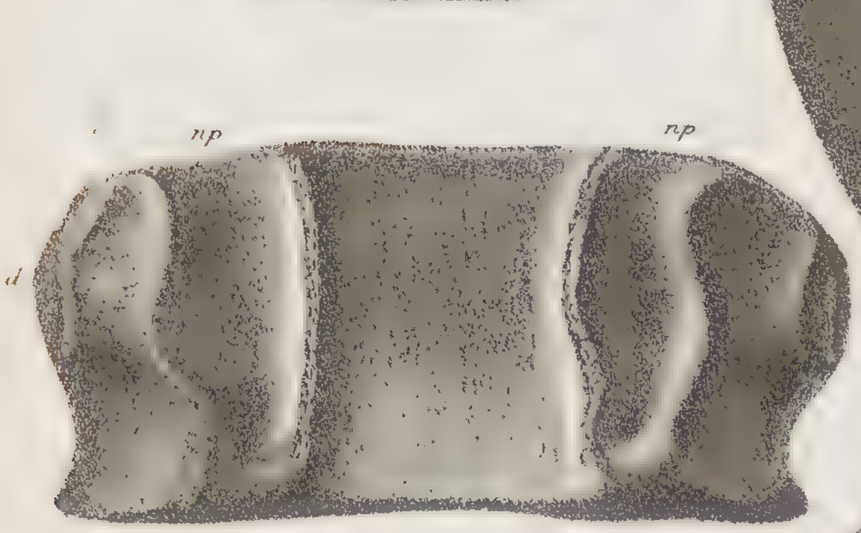



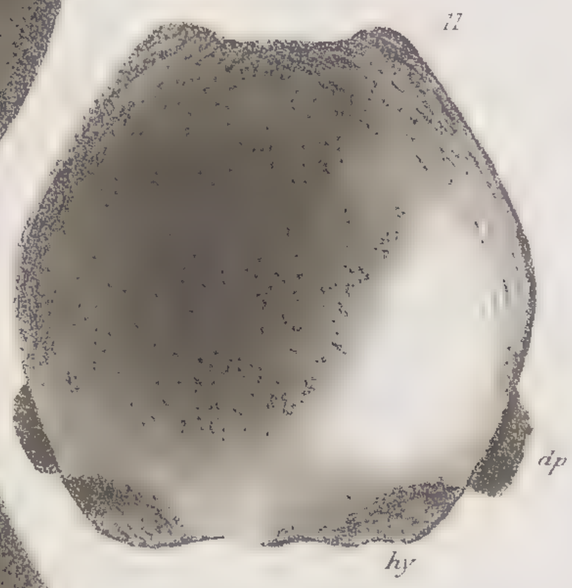





A Gawan del. et lith.

Hanhart imp

REGIONAL CHARACTERS OF VERTEBRÆ

# TAB. XIX.

## Ichthyosaurus.

*Cranial and vertebral characters.*

Fig.

1. Skull, lacking end of snout, upper view (*Ich. longifrons*, Ow.).
2. Centrum of atlas vertebra, front view (ib.).
3. Ib. upper view (ib.).
4. Ib. back view (ib.).
5. Atlas and axis vertebræ, side view (ib.).
6. Atlas, axis, and third vertebræ, side view (*Ich latifrons*).

Figs. 1—5 are from the Upper Lias.

Fig. 6 is from the Lower Lias.

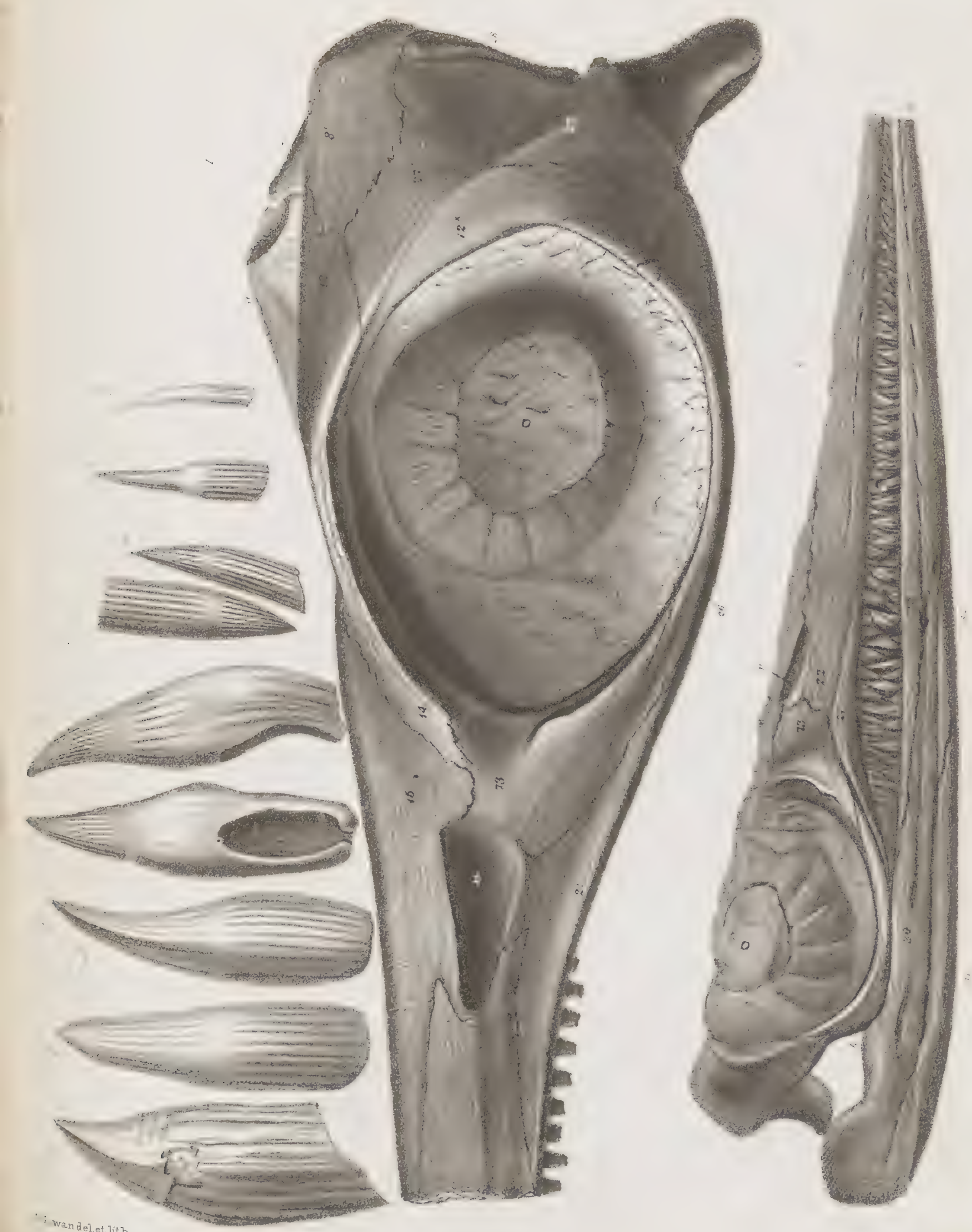
(All the figures are of the natural size.)

# TAB. XX.

## Ichthyosaurus.

Fig.

1. Skull (lacking end of snout), side view (*Ich. longifrons*).
2. Skull (lacking upper surface), side view (*Ich. communis*).
3. Tooth of *Ich. trigonodon*.
4, 4′. Teeth of *Ich. platyodon*.
5, 5′. Teeth of *Ich. communis*.
6, 6′. Teeth of *Ich. lonchiodon*.
7. Tooth of *Ich. intermedius*.
8. Tooth of *Ich. tenuirostris*.



wan del. et lith

Hanhart imp.

I. ICHTHYOSAURUS. LONGIFRONS. 2.1. COMMUNIS. 3-8. TEETH OF DIFFERENT SPECIES.

# TAB. XXI.

## Ichthyosaurus.

Fig.

1. Skull (lacking lower jaw and end of upper jaw), base view (*Ich. longifrons*).
2. Outline of lower view of symphysial end of mandible (*Ich. longirostris*).
3. Ib. with hyoid bones (*Ich. tenuirostris*).

1.ICHTHYOSAURUS LONGIFRONS. 2. IC[illegible]IROSTRIS. 3.ICH. TENUIROSTRIS.

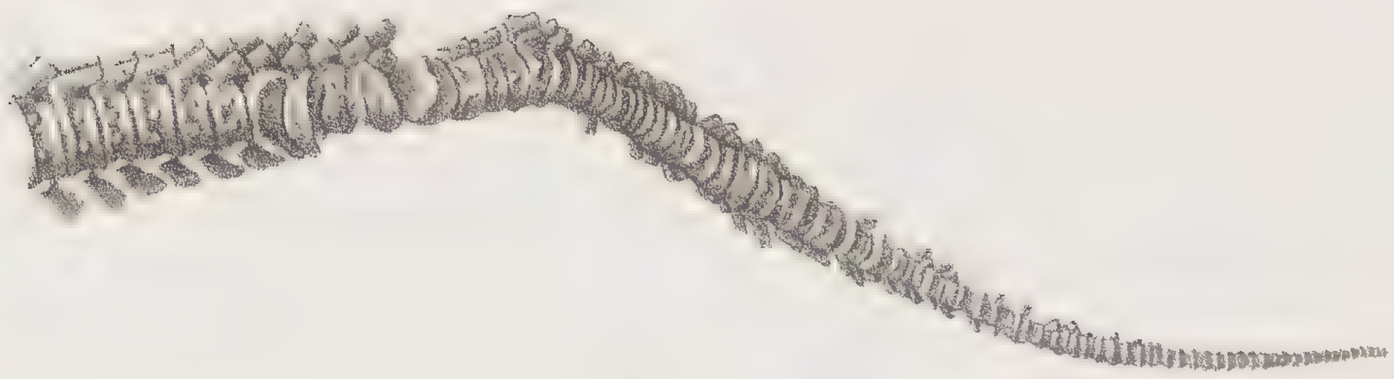
## TAB. XXII.

### Ichthyosaurus.

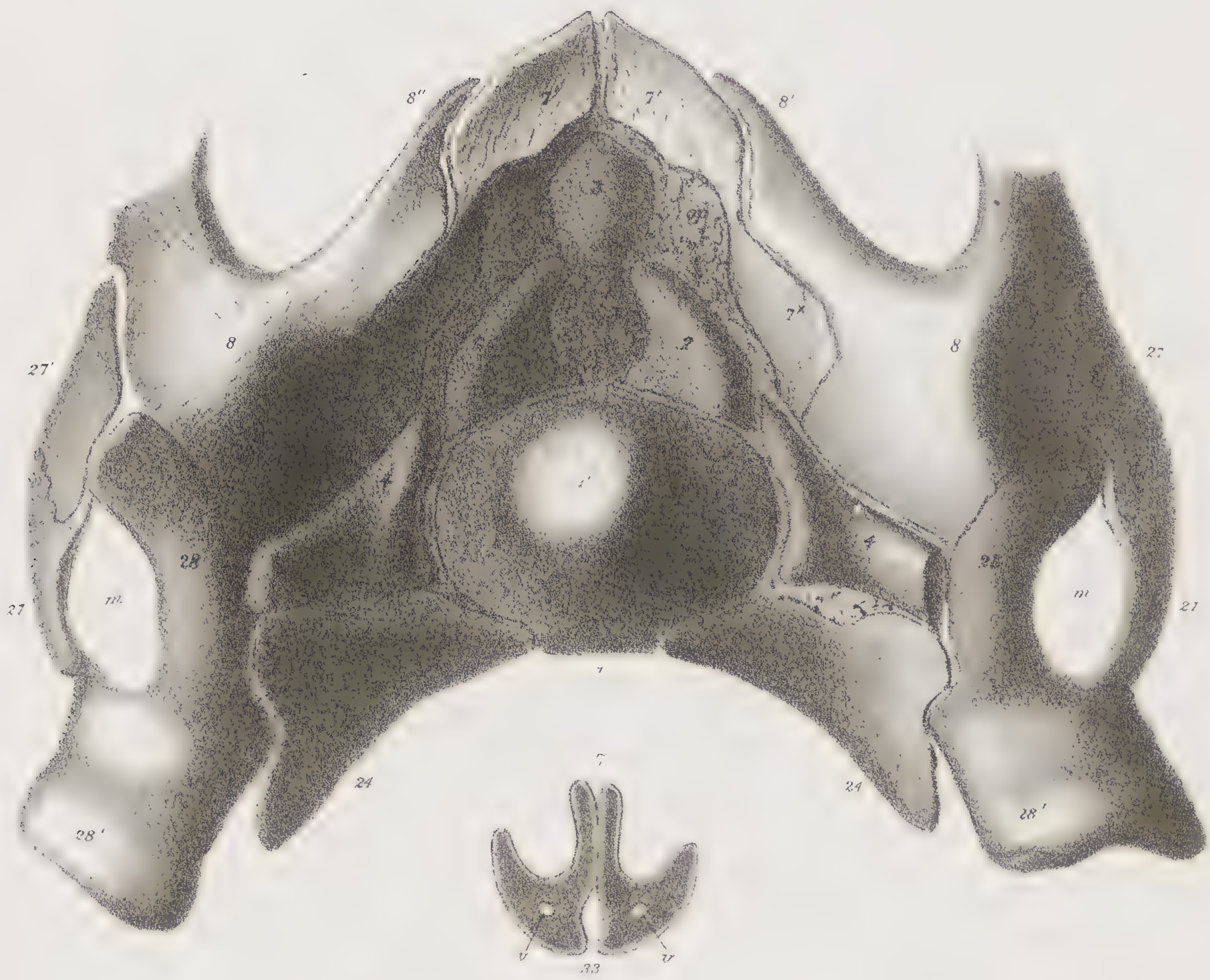
Fig.

1. Skull (lacking the lower jaw), back view (*Ich. longifrons*).
2. Vertical transverse section of hind end of mandibular ramus (*Ich. intermedius*).
3. Ib., somewhat in advance of fig. 2 (ib.).
4. Ib., across the hinder end of the dentary element (ib.).
5. Ib., in advance of the mid-length of mandibular ramus (ib.).
6. Ib., across the anterior end of the surangular and splenial elements (ib.).
7. Ib., near the anterior end of both mandibular rami (ib.).
8. Terminal caudal vertebræ with accidentally deflected pinnigerous end (ib.).

(All the figures save the last are of the natural size.)



1




2

3

4

5

6

A Gawan del. et lith. Hanhart imp.

1. ICHTHYOSAURUS LONGIFRONS.

# TAB. XXIII.

## Ichthyosaurus.

Fig.

1. Skull (lacking end of snout), upper view (*Ich. latifrons*).
2. Hypapophysis or 'wedge-bone' of the atlas vertebra, upper view (*Ich. longifrons*).
3. Axis vertebra, upper view (ib.).
4. Ib., front view (ib.).
5. Ib., back view (ib.).

(All the figures are of the natural size.)

del et lith

ICHTHYOSAURUS LATIFRONS

## TAB. XXIV.

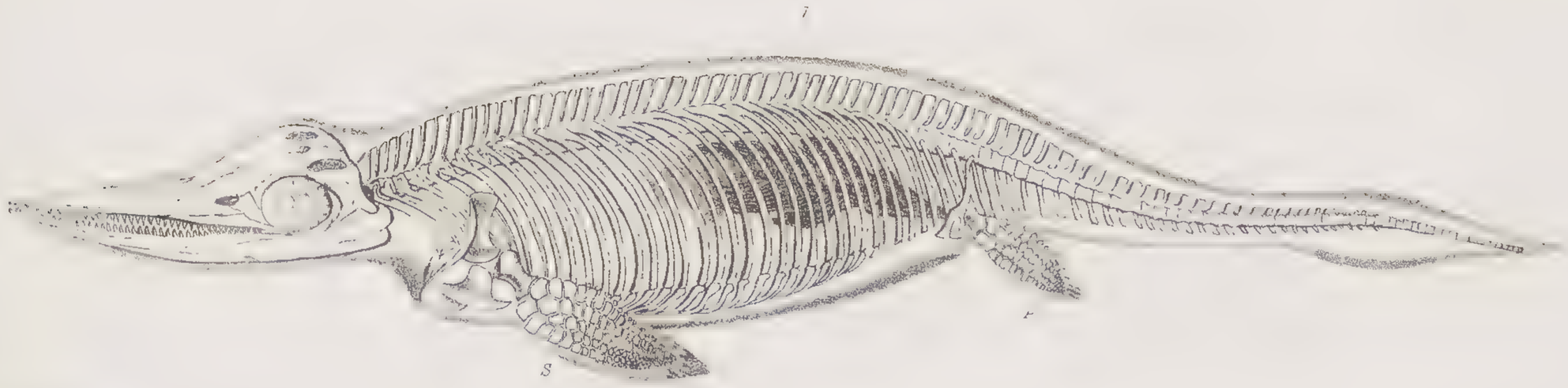
### Ichthyosaurus.

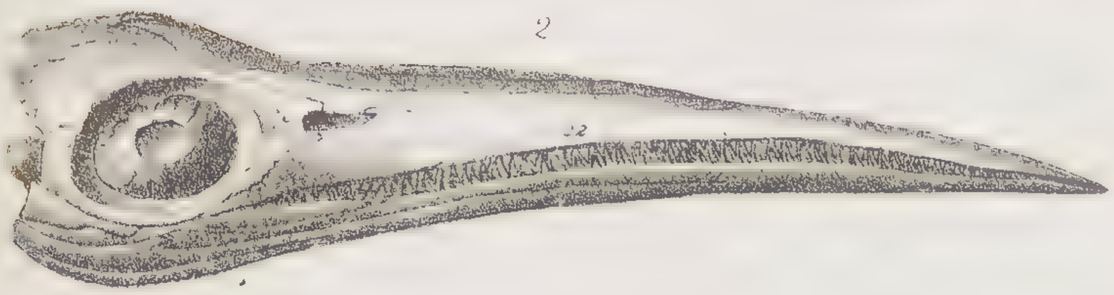
Fig.

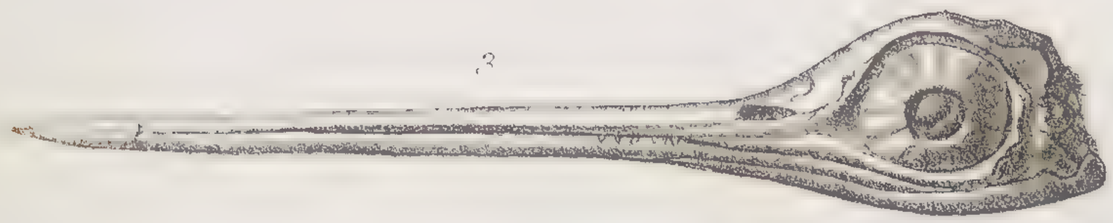
1. Restoration with skeleton and included fœtus (*Ich. communis*).
2. Skull, side view (*Ich. acutirostris*).
3. Ib., ib. (*Ich. longirostris*).
4. Scapular arches and humeri (*Ich. communis*).

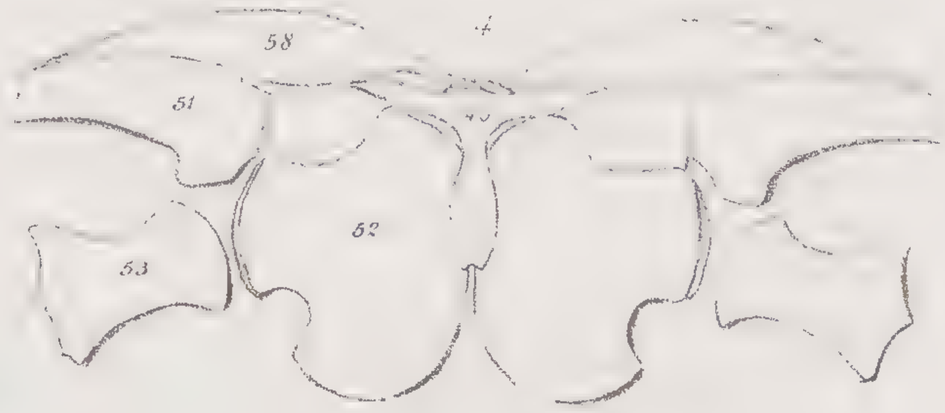
(These figures are more or less reduced.)

5. Slab of Lias, with bones and part of tegumentary sheath of hind fin, nat. size (*Ich. communis ?*).



AGawan del et lith

Ha[illegible]

ICHTHYOSAURUS COMMUNIS, 2 ICH. ACUTIROSTRIS; 3 ICH LONGIROSTRIS

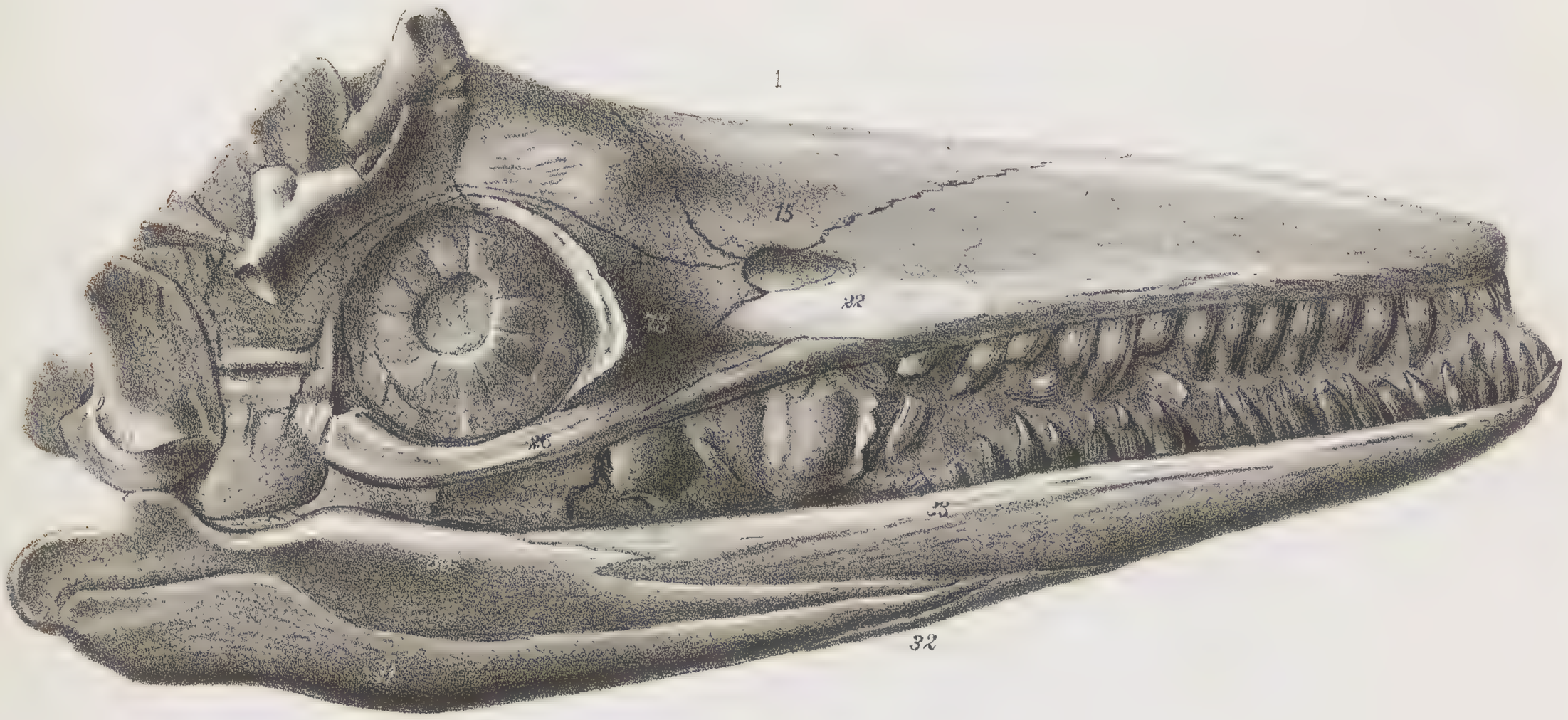
# TAB. XXV.

## Ichthyosaurus breviceps, *Ow.*

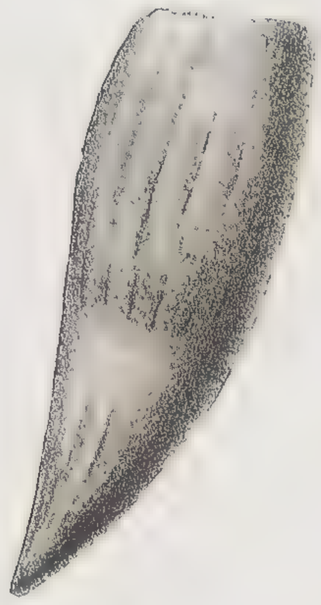
Fig.

1. Skull, side view, $\frac{1}{4}$ nat. size.
2. Skeleton of a younger specimen, $\frac{1}{6}$ nat. size.
3. Tooth from upper jaw of fig. 1, nat. size.
4. Ib. from lower jaw of fig. 1, nat. size.
5. Ib. from hinder part of the series, nat. size.

1




3



4

5

2

on Stone by J Erxleben.

Hanhart imp

ICHTHYOSAURUS BREVICEPS.

# TAB. XXVI.

## Ichthyosaurus intermedius.

Fig.

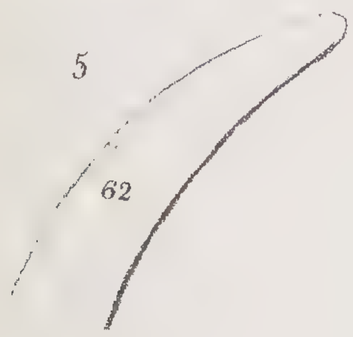
1. Skeleton, from the dorsal aspect, $\frac{1}{8}$ nat size.
2. Symphysis mandibulæ, under view, $\frac{1}{2}$ nat. size.

## Ichthyosaurus communis.

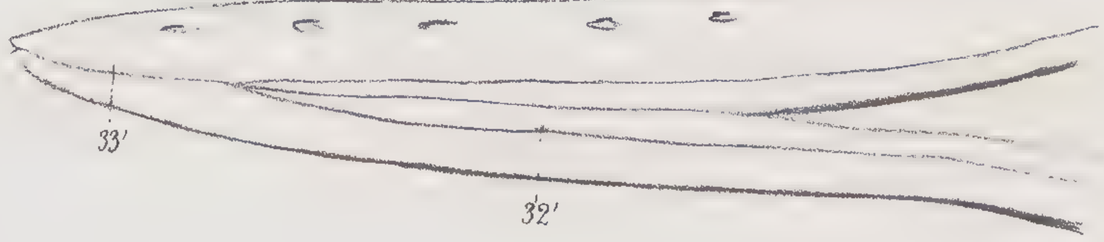
3. Portion of skeleton, from the ventral aspect, $\frac{1}{7}$ nat. size.
4. Symphysis mandibulæ, under view, $\frac{1}{2}$ nat. size.
5. Bones of pelvic arch, left side, $\frac{1}{2}$ nat. size.

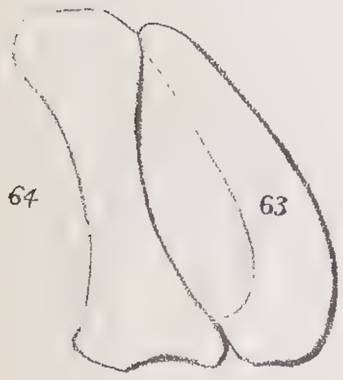
1

5




2

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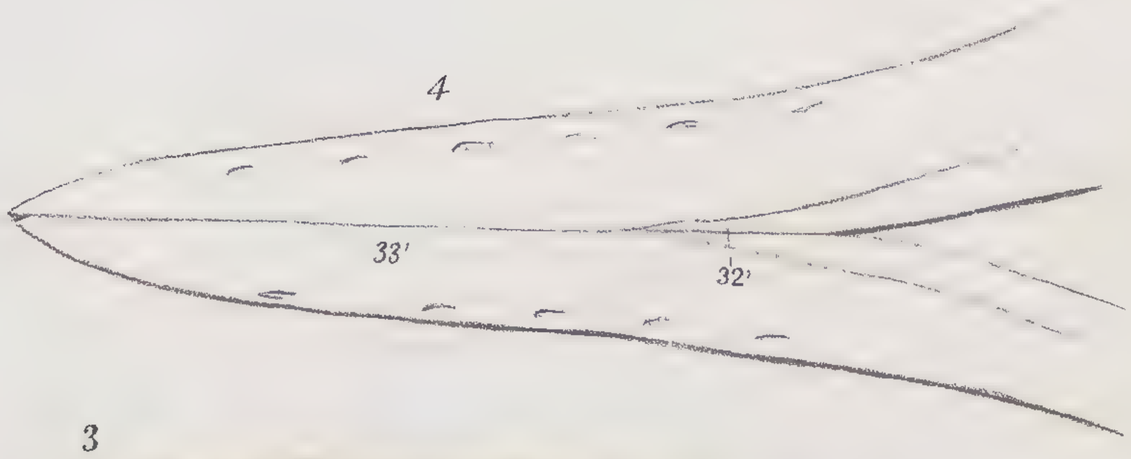


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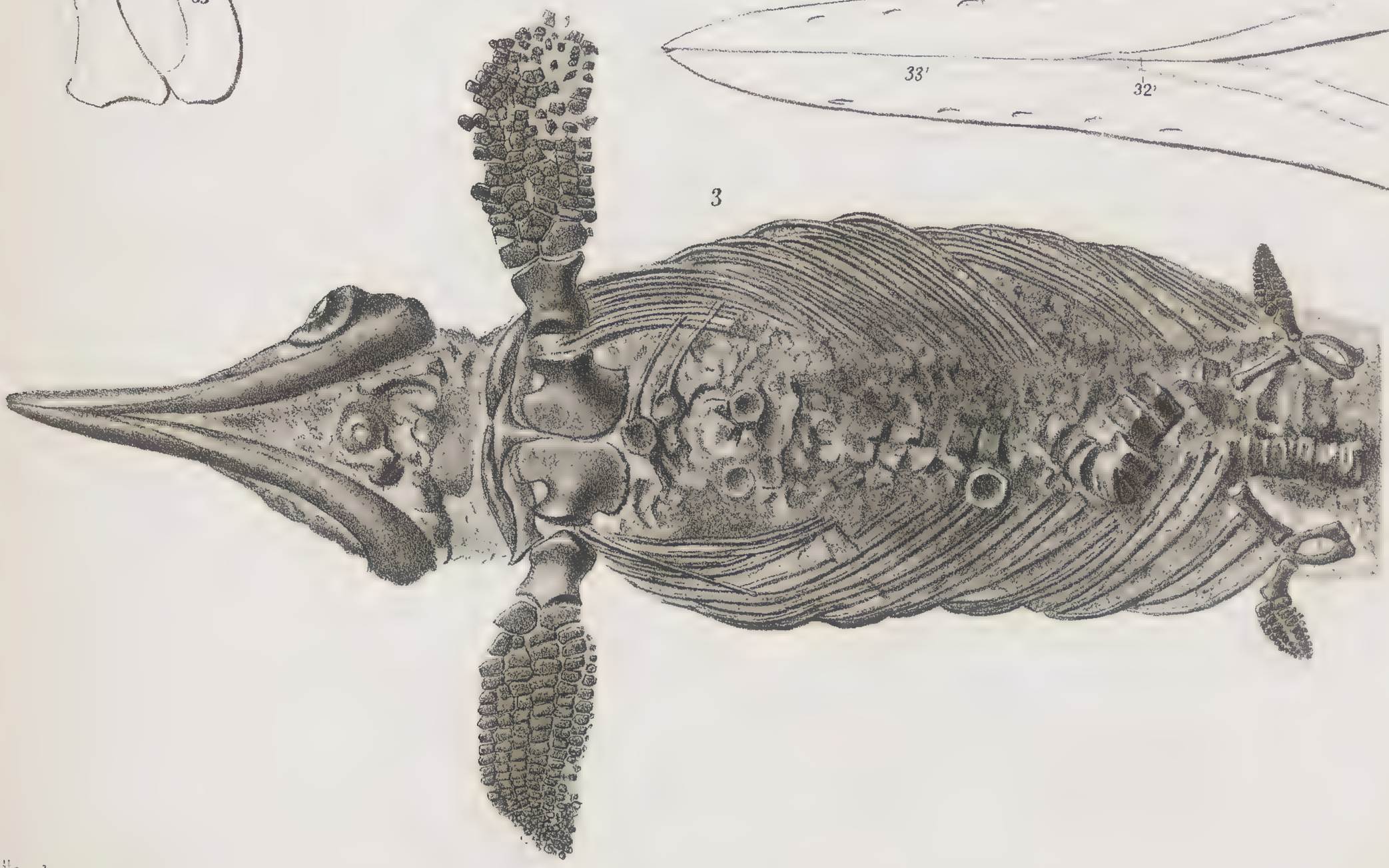


on stone by J. Erxleben.

Hanhart imp.

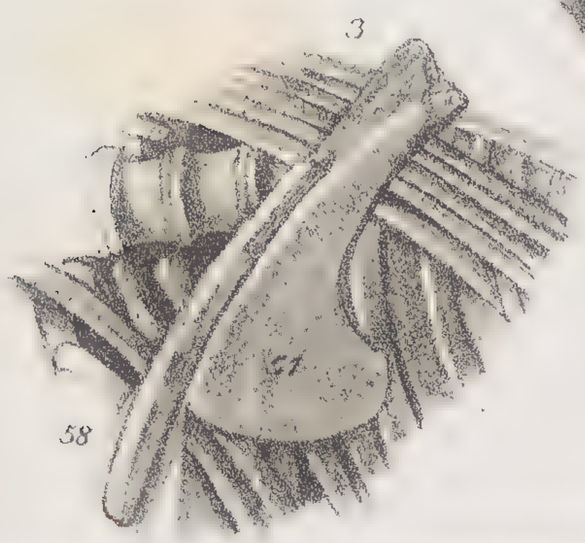
I & 2. ICHTHYOSAURUS INTERMEDIUS 3.4.5. ICH. COMMUNIS.

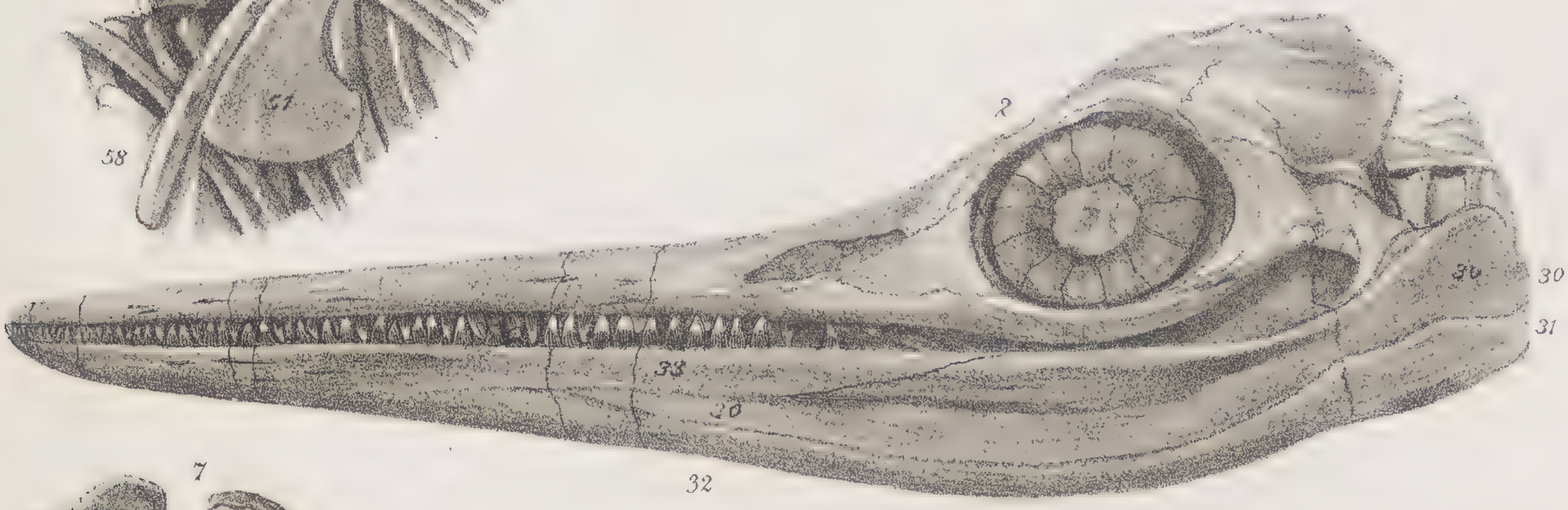
# TAB. XXVII.

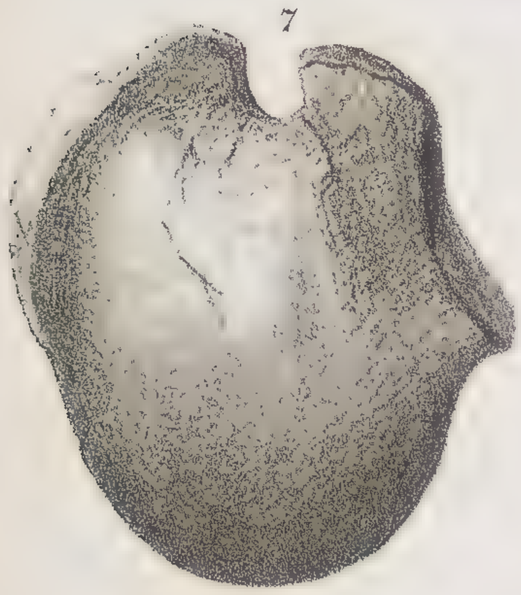
## Ichthyosaurus.

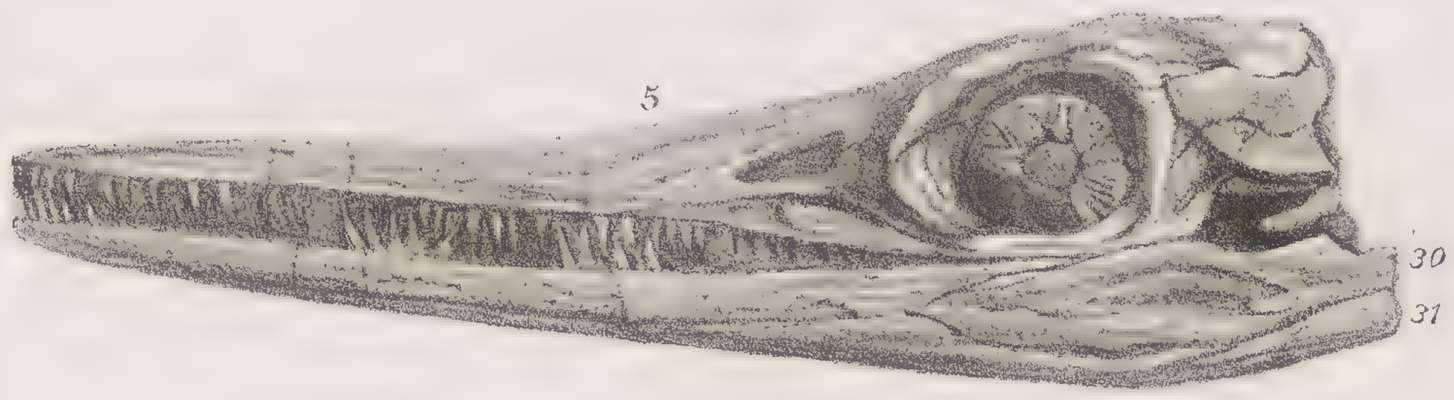
Fig.

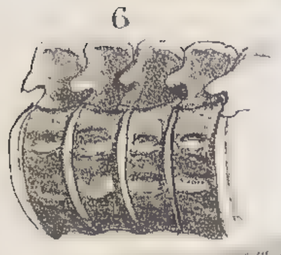
1. *Ichthyosaurus platyodon*, skeleton, dorsal aspect, much reduced.
2. Skull of do., side view, $\frac{1}{10}$ nat. size.
3. Parts of thorax and scapular arch of do., $\frac{1}{12}$ nat. size.
4. Skeleton, *minus* skull, of *Ichthyosaurus lonchiodon*, much reduced.
5. Skull of do., side view, $\frac{1}{10}$ nat. size.
6. Four trunk-vertebræ of do., side view, $\frac{1}{10}$ nat. size.
7. Right coracoid of do, outer view, $\frac{1}{5}$ nat. size.

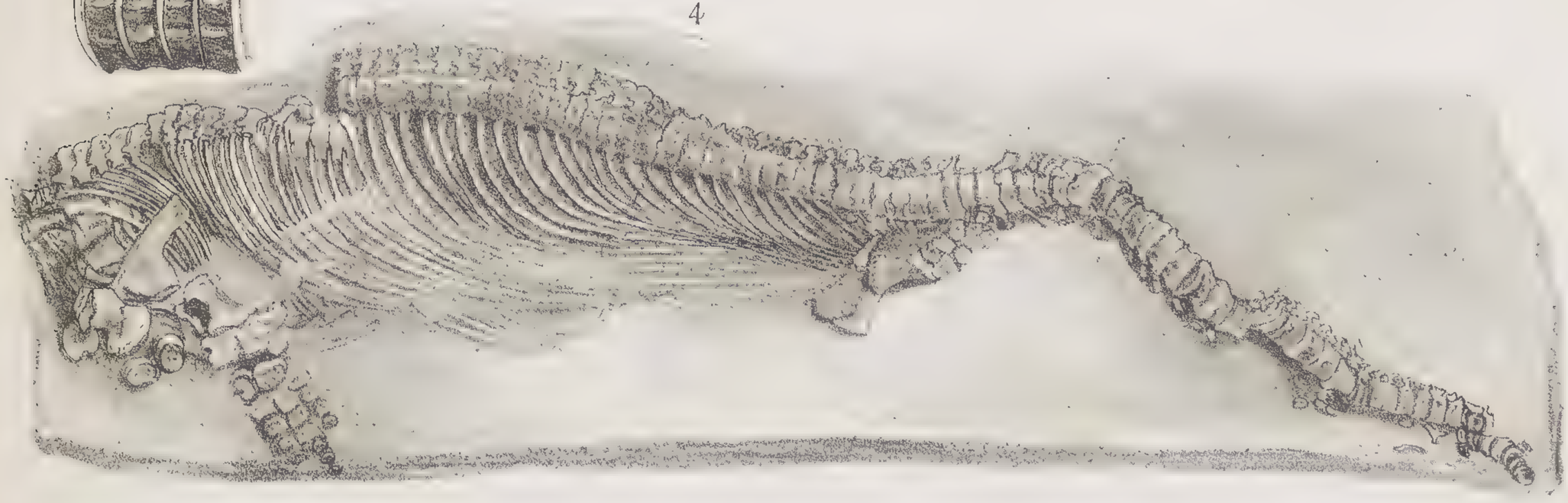



on Stone by J. Erxleben.

Hanhart imp.

1–3. ICHTHYOSAURUS PLATYODON; 4–7 ICH. LONCHIODON.

# TAB. XXVIII.

## Ichthyosaurus.

Fig.

1. *Ichthyosaurus tenuirostris*, skeleton, dorsal aspect, much reduced.
2. Ib., oblique side view of skull, $\frac{1}{5}$ nat. size.
3. Ib., episternum and coracoids, ib.
4. Bones of pectoral paddle, in outline, 1-6th nat. size.
5. Pelvic bones in outline, ib.
6. Bones of pelvic paddle, in outline, ib.
7. *Ichthyosaurus longirostris*, skeleton, side view, much reduced.
8. Ib., skull, upper view, much reduced.
8′. Ib., teeth, in outline.
9. Coracoids of do., in outline, $\frac{1}{6}$ nat. size.
10. Pelvic part of skeleton, with fœtus, *Ich. intermedius* (after Jaeger).

on Stone by J. Erxleben.

Hanhart imp.

1–6 ICHTHYOSAURUS TENUIROSTRIS 7–9 ICH. LONGIROSTRIS 10. ICH. INTERMEDIUS.

# TAB. XXIX.

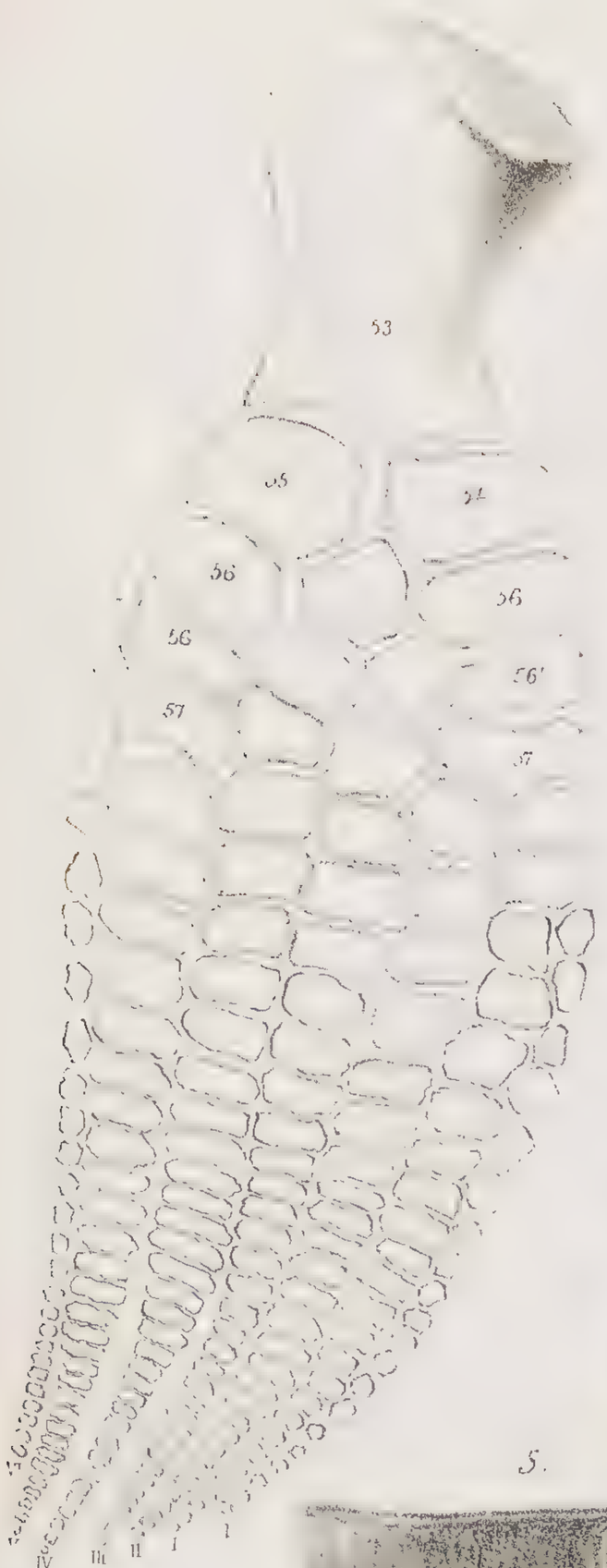
## Ichthyosaurus.

Fig.

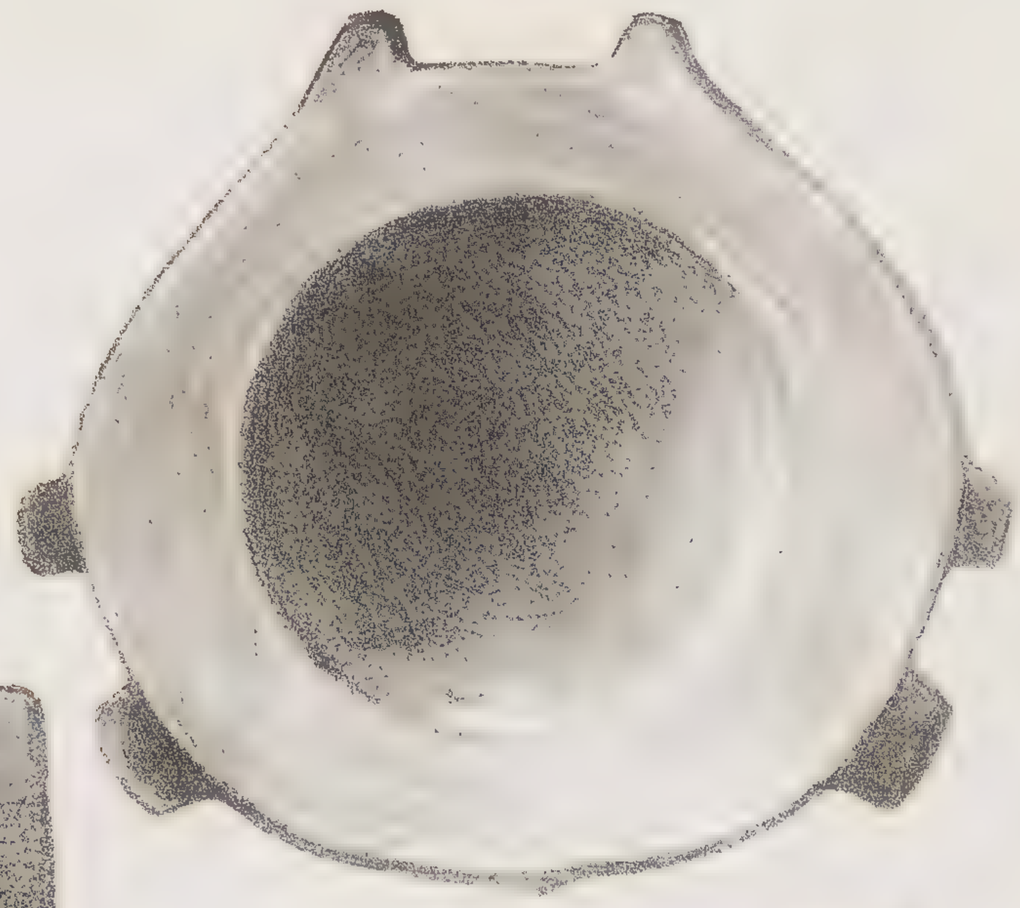
1. Restoration of bones of pectoral paddle, in outline, $\frac{1}{3}$ nat. size.
2. Articular surface of centrum of *Ichthyosaurus latimanus*.
3. Side view of centrum of *Ichthyosaurus brachyspondylus*.
4. Articular surface of do., do.
5. Neural surface of do., do.
6. Articular surface of post-abdominal vertebra of do.
7. Side view of centrum of *Ichthyosaurus latimanus*.

Figs. 2—7 are of the natural size.

1.

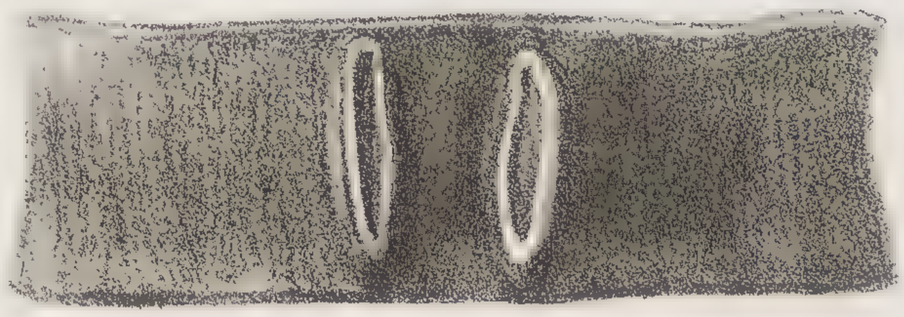



2.



3.

5.



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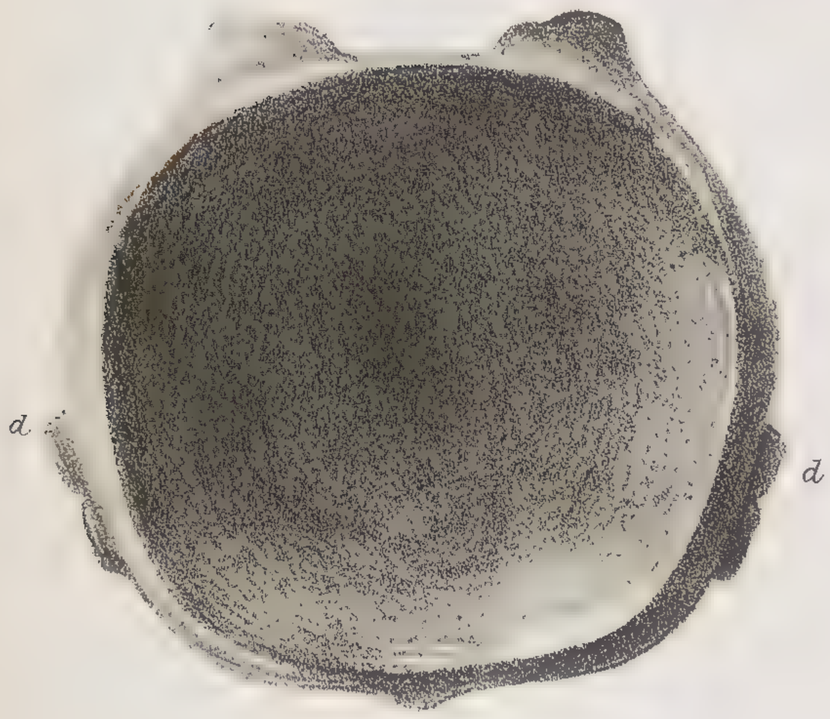
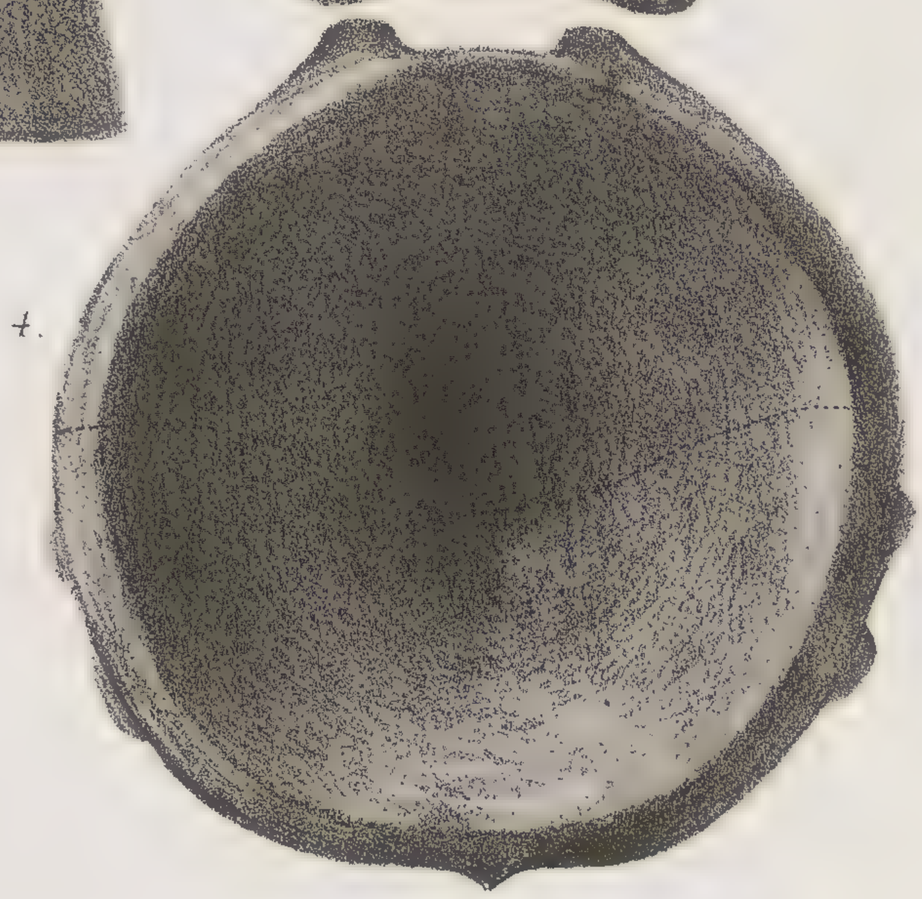



7

4.



f.owen del on Stone by J Erxleben

Hanhart imp

I RESTORATION OF PADDLE
2,7. ICHTHYOSAURUS LATIMANUS 3,6, ICHTHYOSARUS BRACHYSPONDYLUS

# TAB. XXX.

## Ichthyosaurus.

Fig.

1. Bones of the antibrachium and manus, *Ichthyosaurus fortimanus.*
2. Bones of the fore-fin, *Ichthyosaurus longimanus.*

From the Lias of Barrow-on-Soar.

The formations and localities of the other species described in the text are there recorded.

*Fig 1*

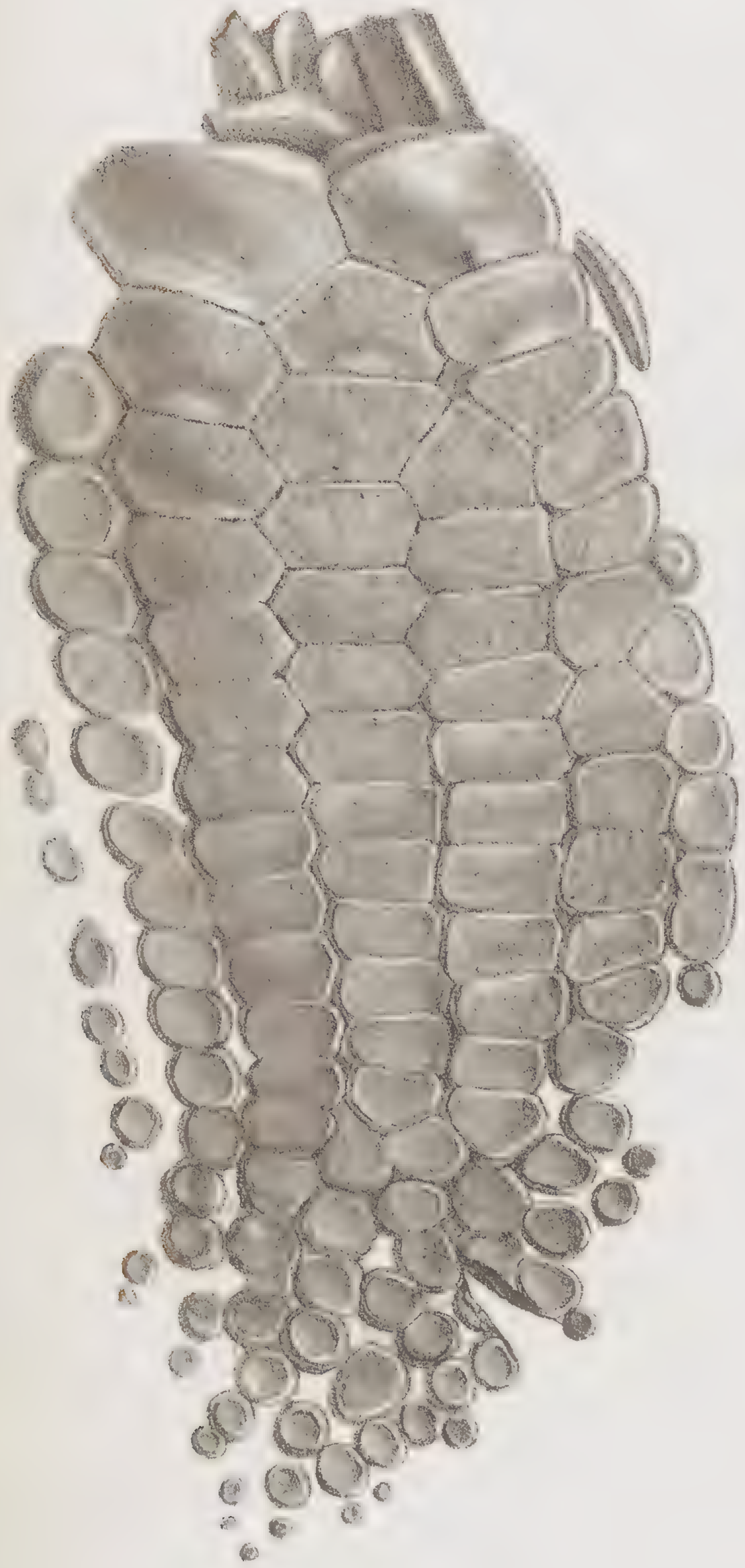


*Fig 2.*

A. Gawan del. et lith.

Hanhart imp.

DINOSAURIA.

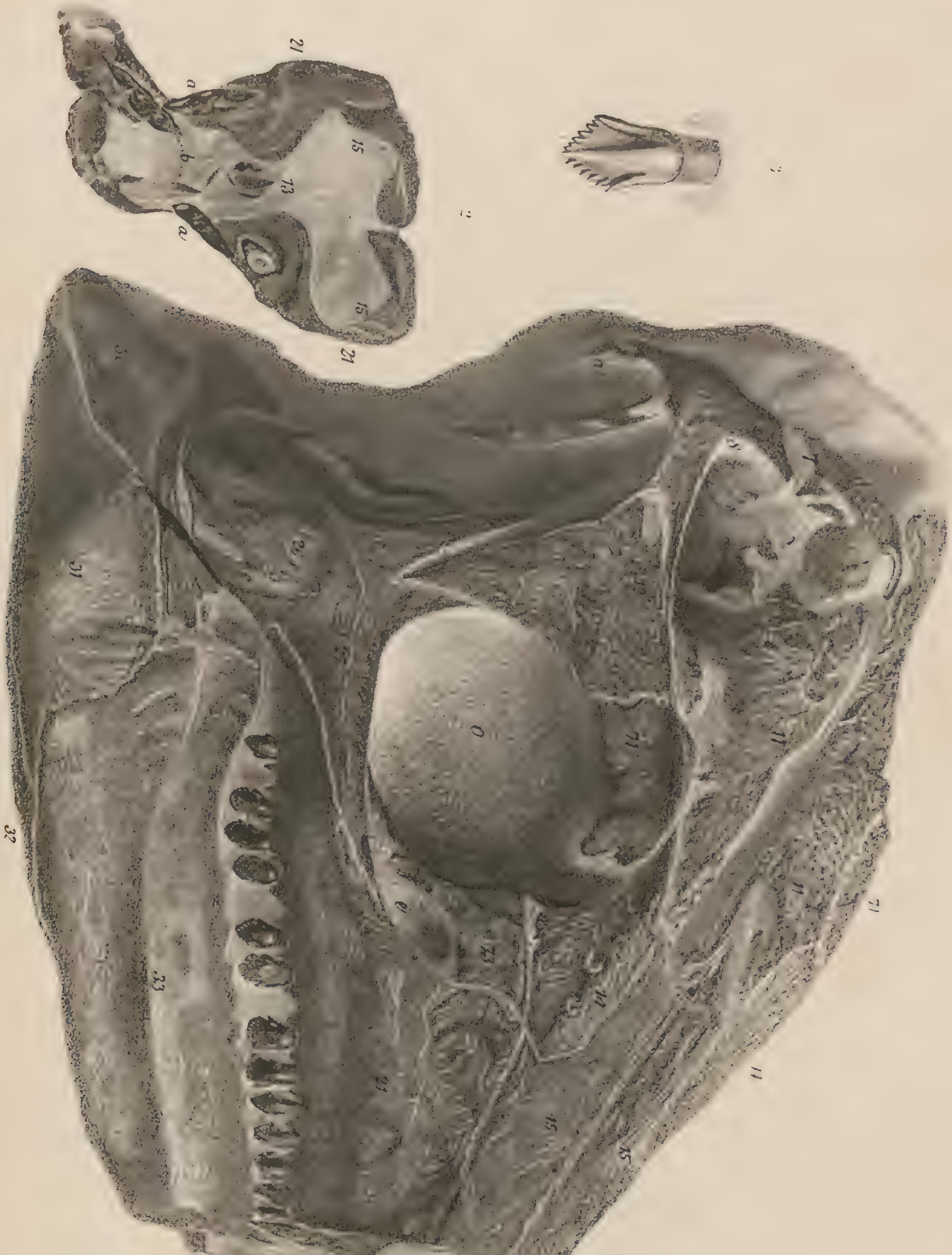
*Scelidosaurus Harrisonii.*

PLATE 46.

FIG.

1. Side view of part of skull; natural size.
2. The fractured fore-end of the same skull, showing teeth in their sockets.
3. Outer side of tooth of the upper jaw, magnified.

The skeleton which afforded the subjects of Plates 46—58 was discovered by James Harrison, Esq., in the Lower Lias of Charmouth, Dorsetshire. The fossils are in the British Museum of Natural History.




Jos Dinkel del et lith

W West, imp

DINOSAURIA.

*Scelidosaurus Harrisonii.*

PLATE 47.

FIG.

1. Upper view of part of skull; natural size.
2. Part of the mutilated side of the same skull; ib.

Jos Dinkel del et lith

W West, imp

DINOSAURIA.

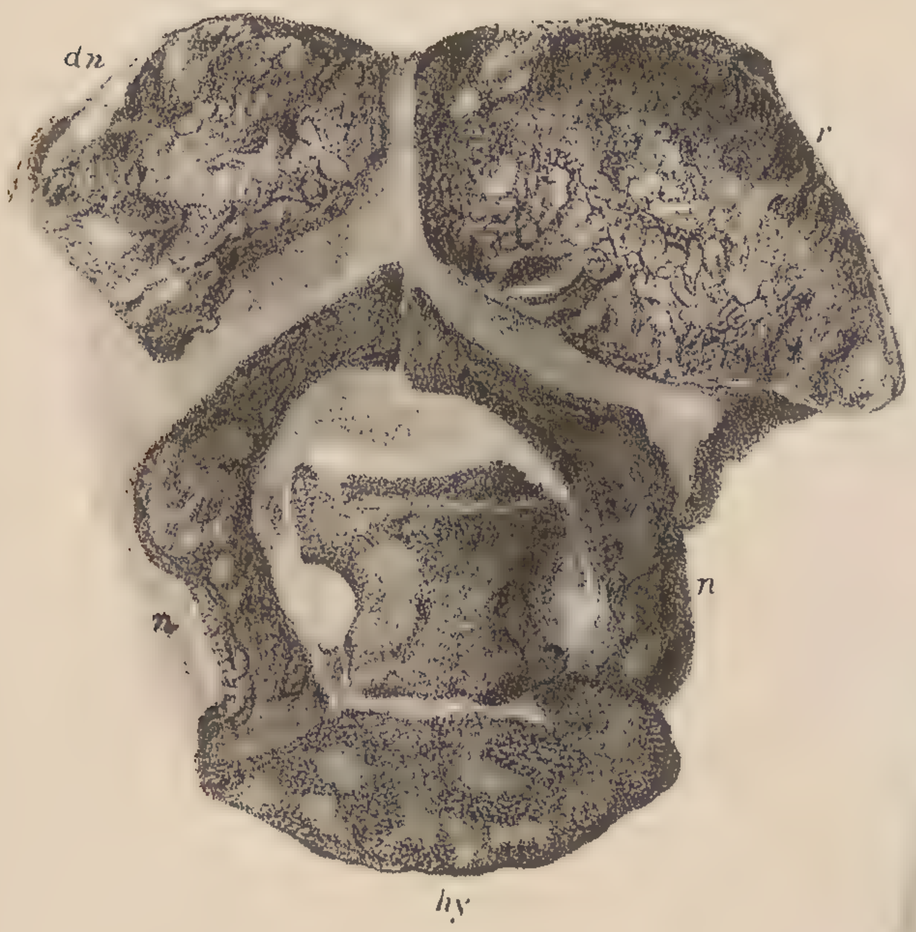
*Scelidosaurus Harrisonii.*

## PLATE 48.

FIG.

1. Part of occiput, with the atlas vertebra.
2. Under surface of centrum of axis and third cervical vertebra.
3. Ib., of sixth cervical vertebra, with part of a rib.
4. Vertical section of the same vertebra.
5. Anterior surface of centrum of cervical vertebra.

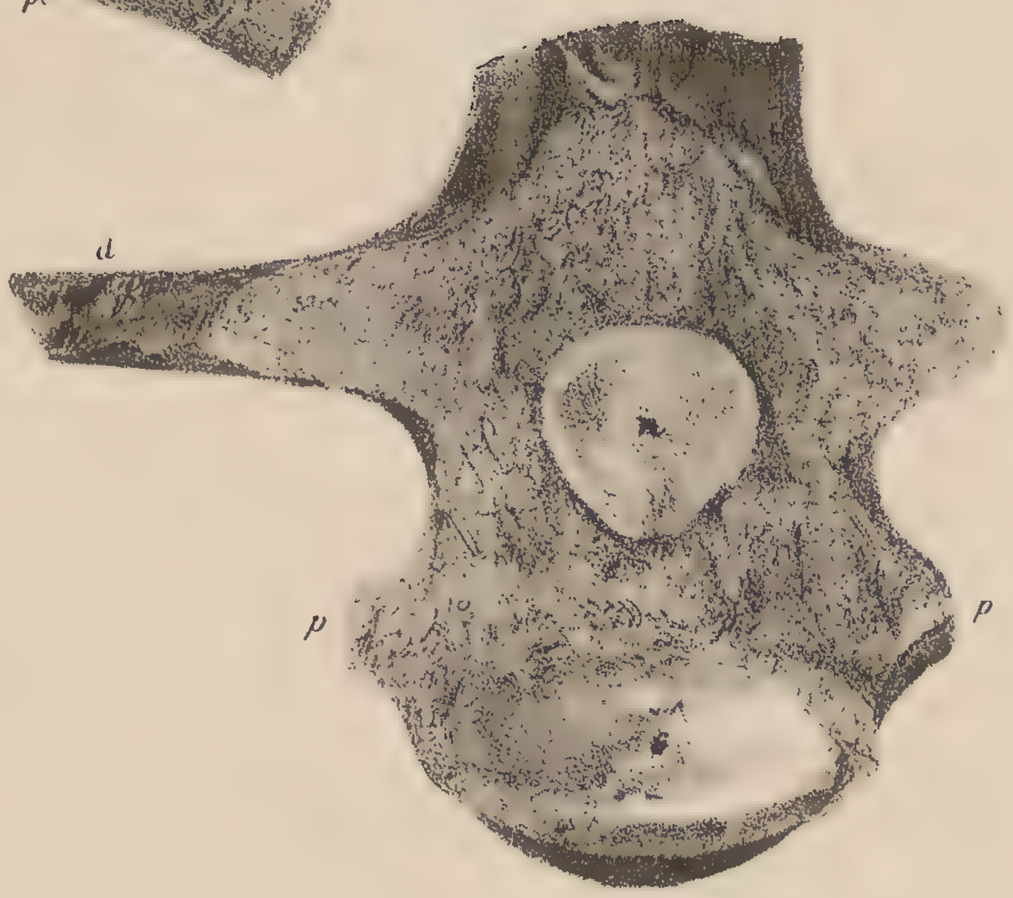
1

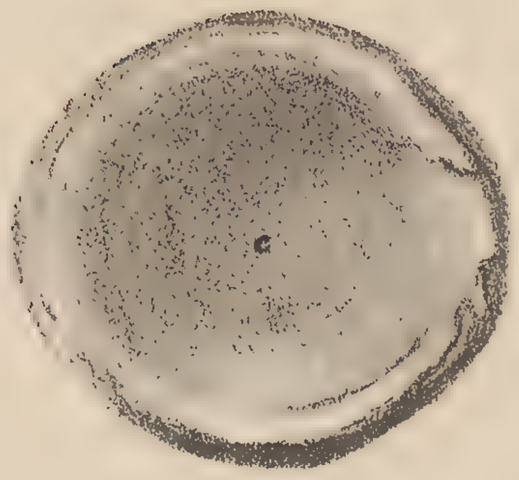



2

3

4



DINOSAURIA.

*Sceliodosaurus Harrisonii.*

## PLATE 49.

FIG.

1. Side view of part of the thorax, with the scapula.
2. A dermal ossicle from the same part of the skeleton.

One third the natural size.

W West, imp

DINOSAURIA.

*Scelidosaurus Harrisonii.*

## PLATE 50.

FIG.

1. Side view of the same part of the thorax, with scapula, coracoid, humerus, and portions of antibrachial bones.

One third the natural size.

(The subjects of Plates 49 and 50 were drawn on the stone without reversing).

Dinkel del

DINOSAURIA.

*Scelidosaurus Harrisonii.*

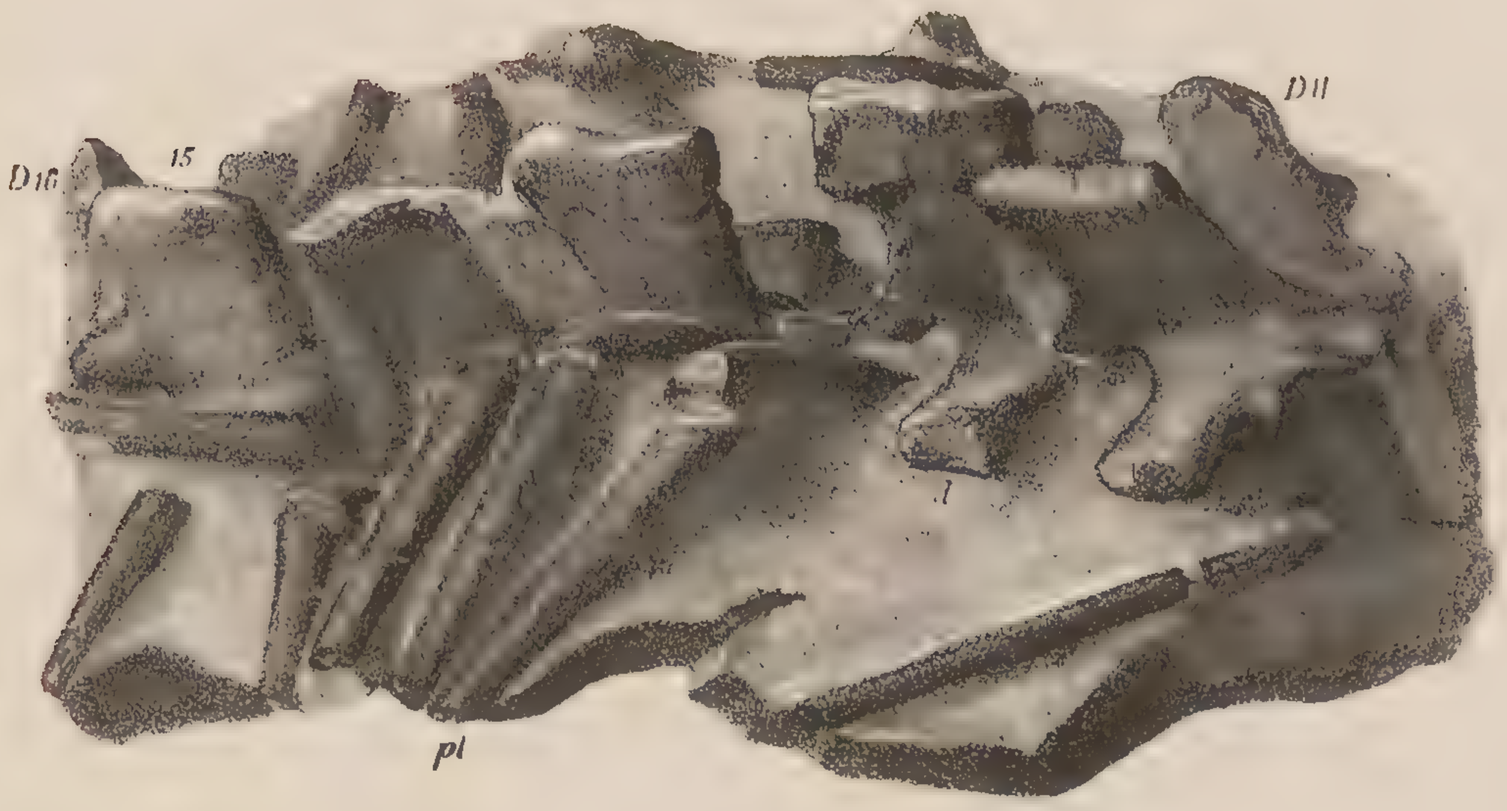
PLATE 51.

FIG.

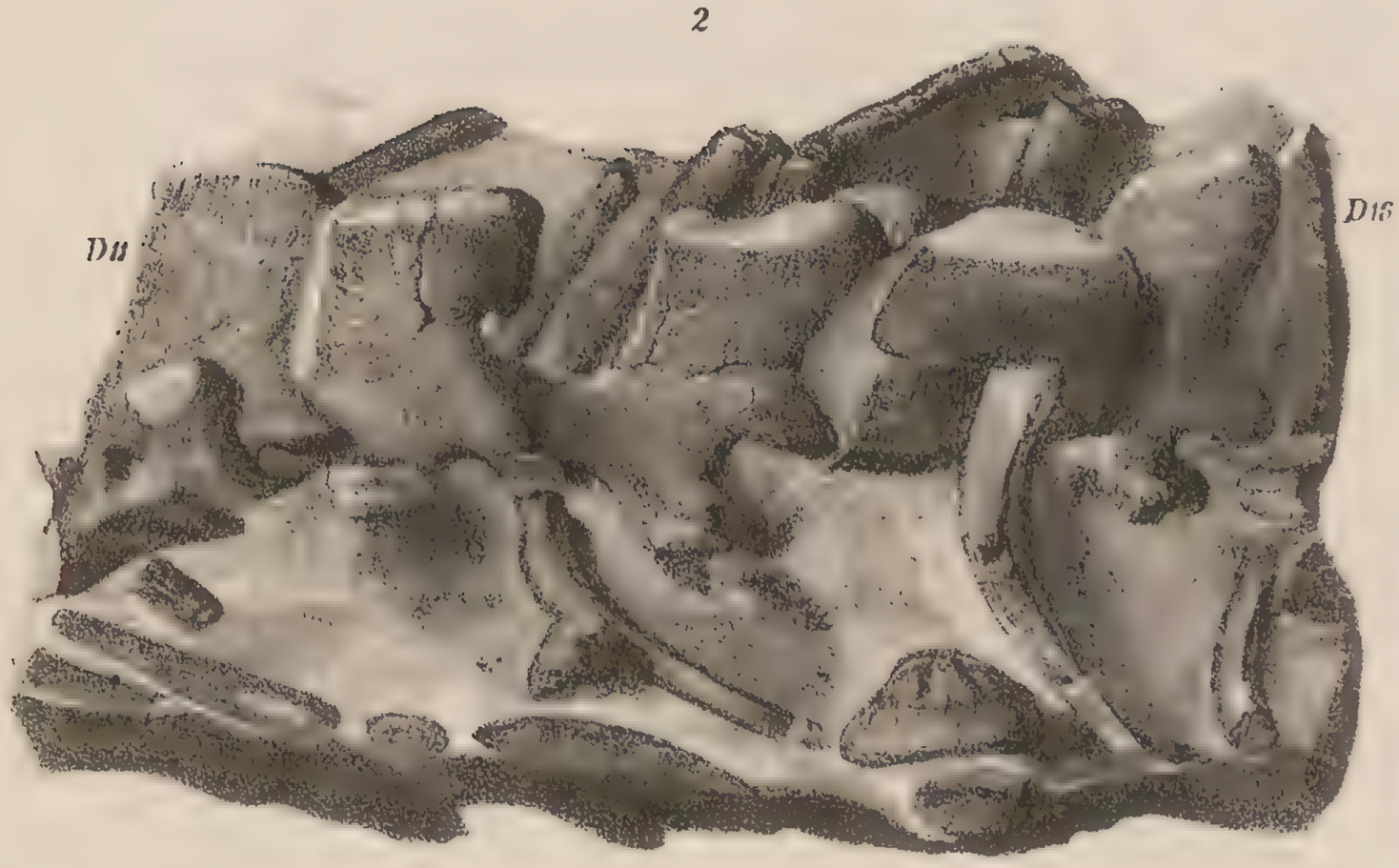
1. Portions of five (12th to 16th) dorsal vertebræ.
2. Ib., ib., from the opposite side.

One third the natural size.

1




2




Jos. Dinkel del

W West imp

DINOSAURIA.

*Scelidosaurus Harrisonii.*

## PLATE 52.

FIG.

1. Front view of eleventh dorsal vertebra.
2. Back view of section of the sixteenth dorsal vertebra.
3. Portion of a dermal bone.
4. Articular surface of a dermo-neural bone.

All the figures are of the natural size.

Jos Dinkel del.

W West imp.

DINOSAURIA.

*Scelidosaurus Harrisonii.*

## PLATE 53.

FIG.

1. Upper surface of four sacral vertebræ, with portions of the iliac bones.
2. Side view of an iliac bone with the same vertebræ.

One third the natural size.

D1
L
S1
Pl
62
S3
pb
D16
L
pl
S1
62

DINOSAURIA.

*Scelidosaurus Harrisonii.*

## PLATE 54.

FIG.

1. Side view of five anterior caudal vertebræ.
2. Under view of the same vertebræ.
3. Section of neural arch of first caudal vertebra.
4. Dermo-neural bone.

Figs. 1 and 2 are one third the natural size; figs. 3 and 4, natural size.

Jos. Dinkel del

W West, imp

DINOSAURIA.

*Scelidosaurus Harrisonii.*

## PLATE 55.

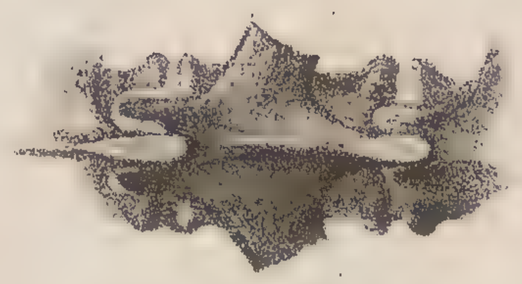
FIG.

1. The sixth to ninth caudal vertebræ, with overlying dermo-neural bones.
2. Upper view of one of the same series.
3. The tenth to fifteenth caudal vertebræ, with dermo-neural bones.
4. Side view of the same series.

One third the natural size.

1

2



4

3

Jos Dinkel del.

W West. imp.

DINOSAURIA.

*Scelidosaurus Harrisonii.*

## PLATE 56.

FIG.

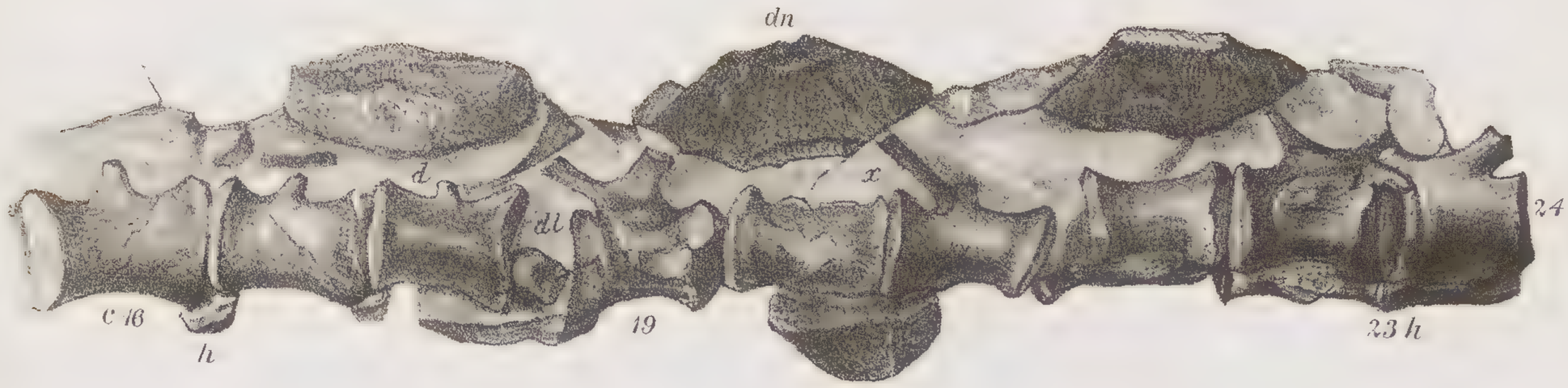
1. The sixteenth to the twenty-fourth caudal vertebræ.
2. The twenty-fifth to the thirty-fifth caudal vertebræ.

One third the natural size.

5. The twenty-seventh and twenty-eighth caudal vertebræ, with concomitant dermo-neural and dermo-hæmal ossicles; natural size.

3—8. Centrums of caudal vertebræ; natural size.

1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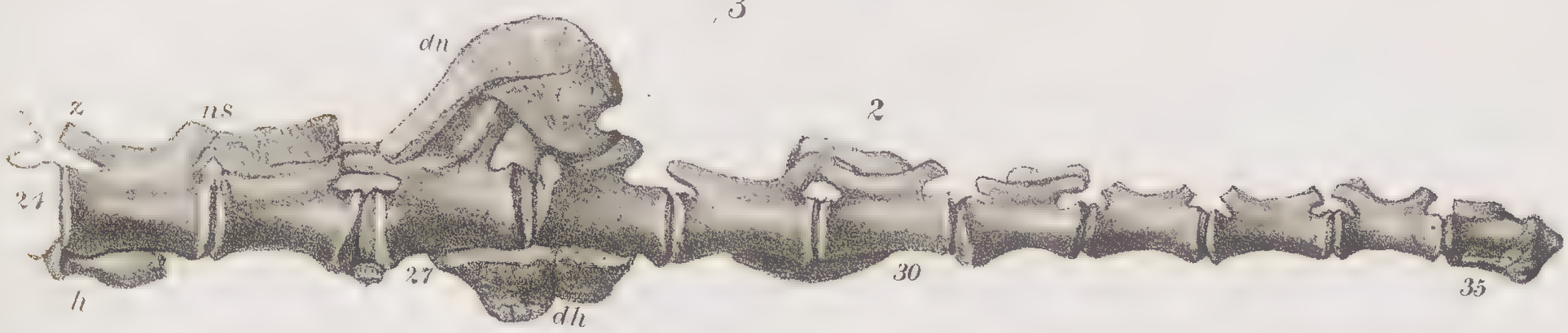
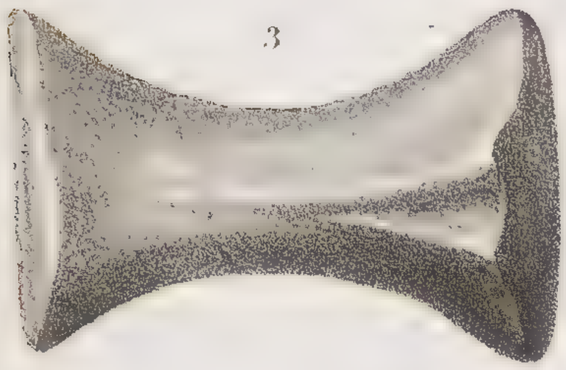
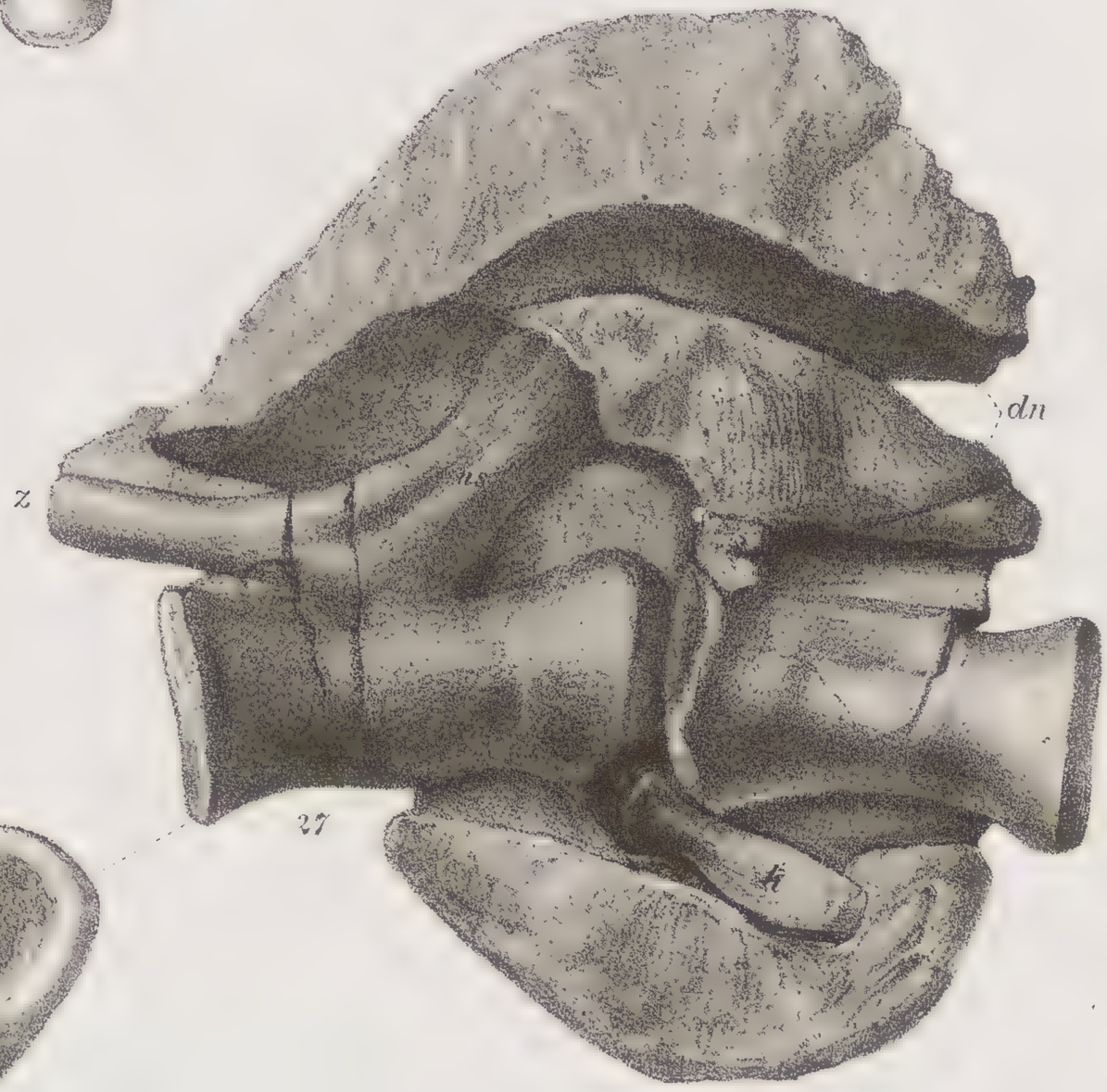
d
dl
x
24
c 16
h
19
23 h
dh

1/3


dn
z
ns
2
24
h
27
dh
30
35


3
h

4


5
dn
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27
h
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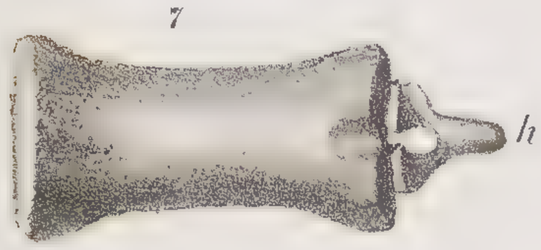
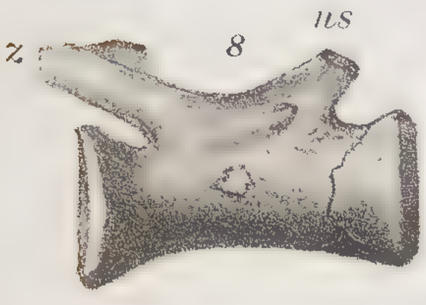
6


7
h


z
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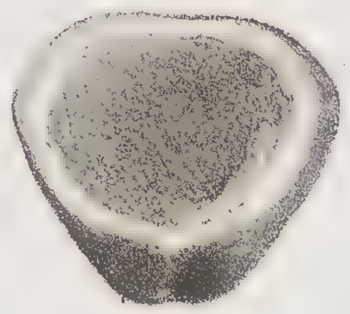
8



DINOSAURIA.

*Scelidosaurus Harrisonii.*

## PLATE 57.

FIG.

1. Bones of the hind-limb; half natural size.
2. Section of femur showing medullary cavity; ib.
3. Under surface of bones of the hind foot; ib.
4. Side view of ungual phalanx of the second toe (ii); nat. size.

Jos. Dinkel del

W. West, imp.

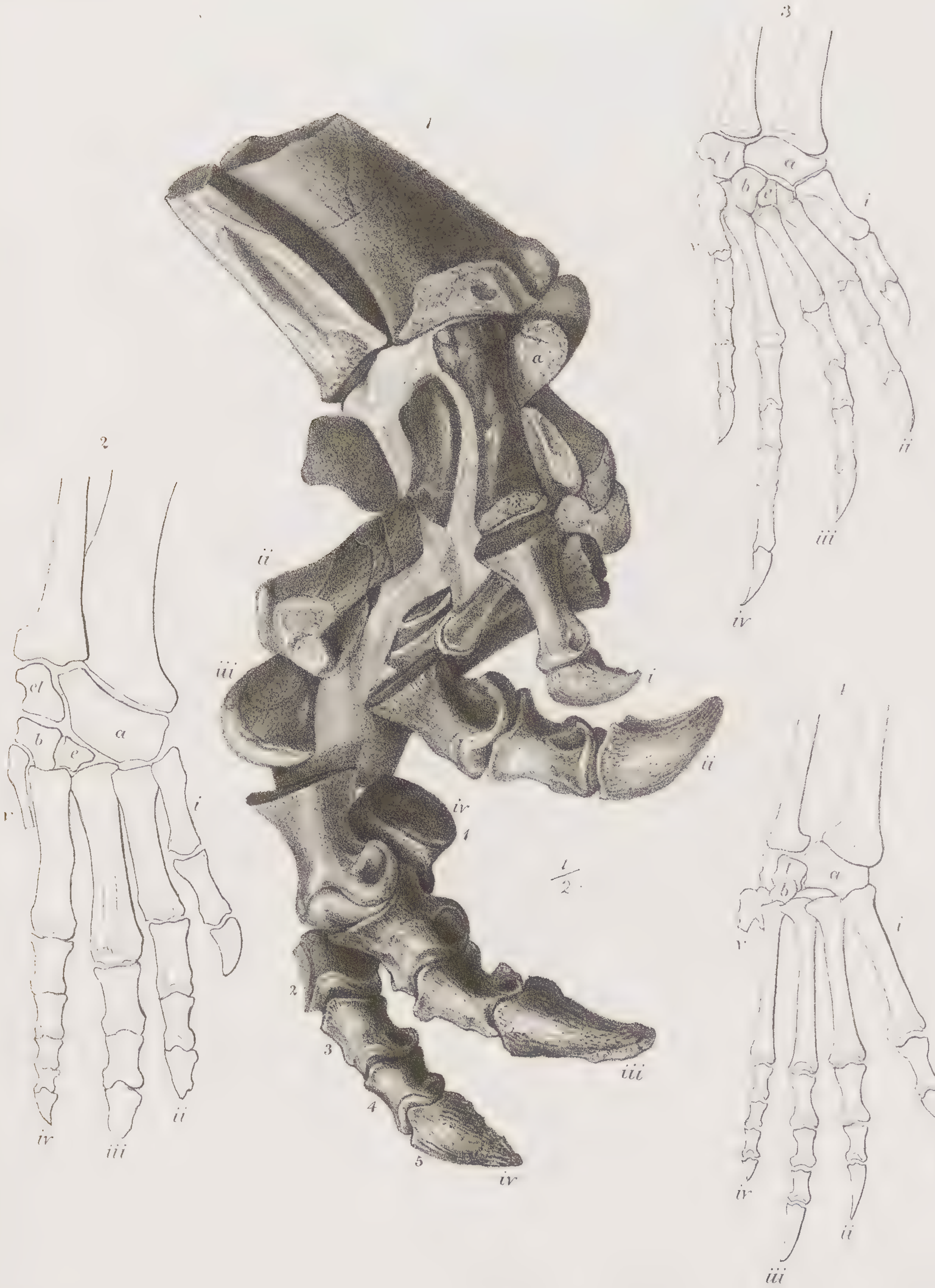
DINOSAURIA.

*Scelidosaurus Harrisonii.*

## PLATE 58.

FIG.

1. Side view of bones of the right hind foot; half natural size.
2. Reduced diagrammatic outline of bones of hind foot (*Scelidosaurus*).
3. Ib. ib. of a monitor lizard (*Varanus*).
4. Ib. ib. of a crocodile (*Crocodilus*).


1
a
ii
iii
i
iv
1
2
3
4
5
iv
1/2.
2
cl
b
c
a
i
ii
iii
iv
3
a
i
ii
iii
iv
1
a
b
i
ii
iii
iv

# PLATE 11.

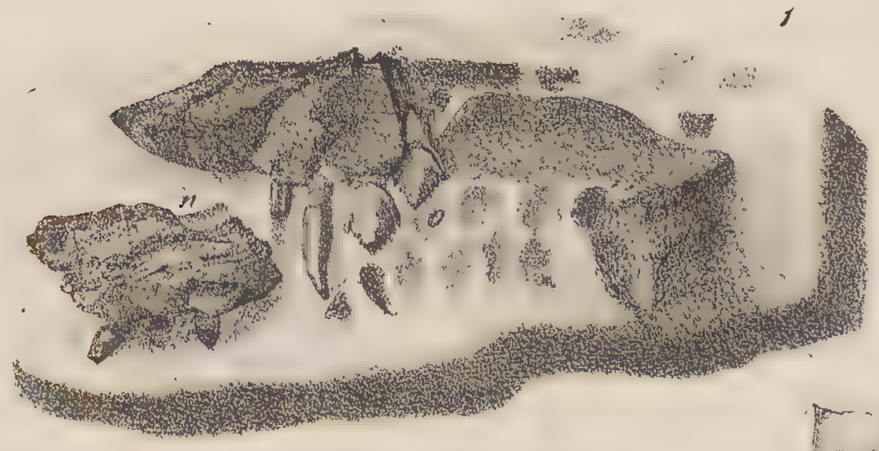
LACERTIANS.—*Echinodon Becclesii.*

FIG.

1. Fore part of upper jaw and teeth; *a*, nat. size; *b*, tooth, magnified.
2. Hind part of upper jaw and teeth; *a*, nat. size; *b*, tooth, magnified.
3. Part of upper jaw and teeth, outer side; *a*, nat. size; *b*, teeth, magnified.
4. Ib., inner side; *a*, nat. size.
5. Part of lower jaw; *a*, nat. size; *a*, *b*, *c*, anterior teeth, magnified.
6. Part of lower jaw, outer side; *a*, nat. size.
7. Ib., dentigerous border; *a*, *b*, crown of a rising tooth, magnified.
8. Ib., inner side.
9. Fore part of lower jaw; *a*, tooth; both figures magnified.

From the Purbeck Oolite, Dorsetshire.

1

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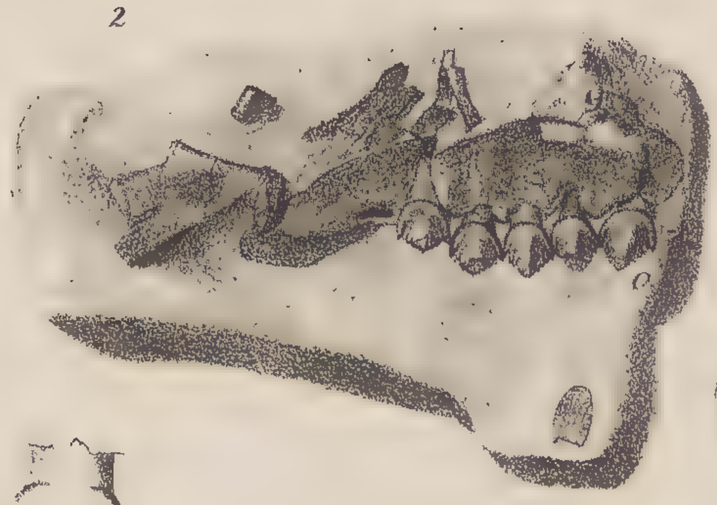
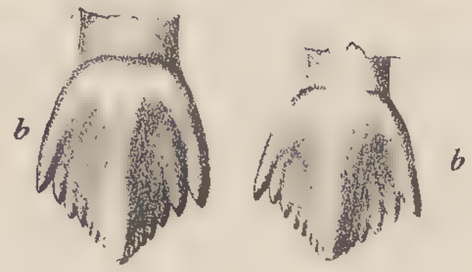
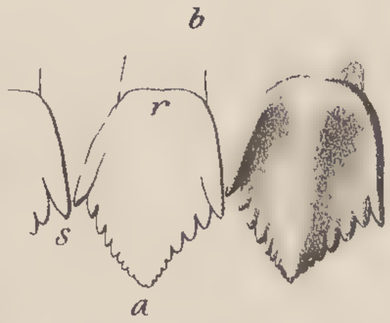




3

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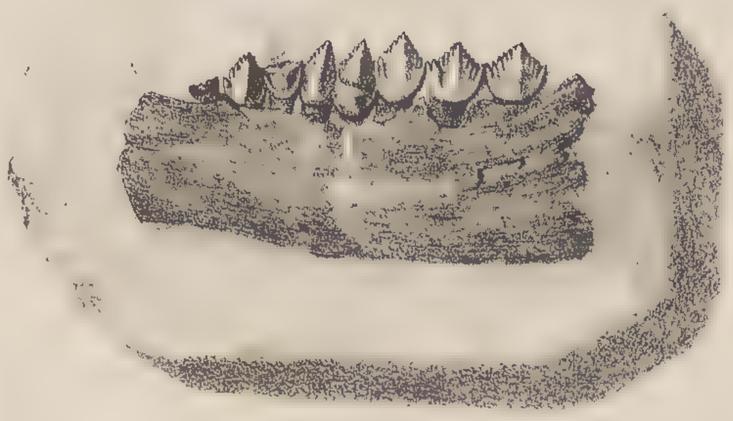
4

5



6

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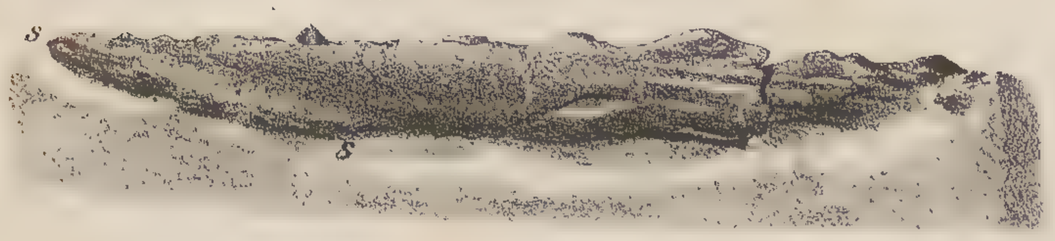

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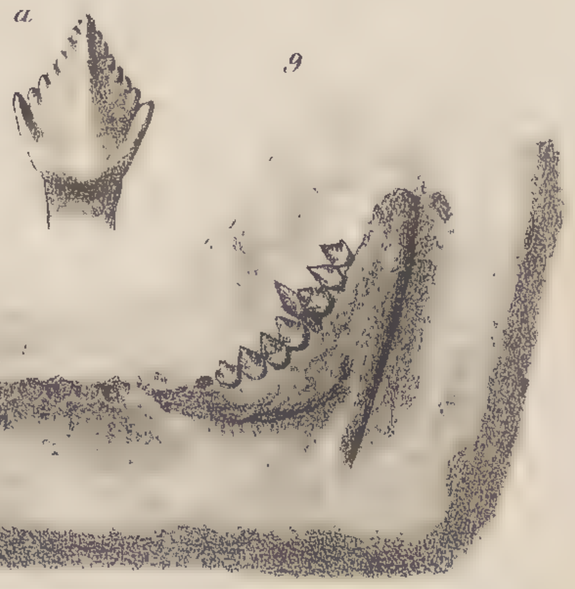



Jos. Dinkel lith.

W. West imp.

# PLATE 15.

## Crocodilia.

Fig.

1. Skeleton of *Teleosaurus Chapmanni ;* reduced view.
2. Under surface of part of lower jaw ; ib.

From the Lias of Whitby, Yorkshire.

*J.E. Gerard del et Zinc*

*Teleosaurus Chapmanni.*

## PLATE 16.

### Crocodilia.

Fig.

1. *Teleosaurus brevior*, side view of skull.
2. Ib., under view of skull.
3. Ib., back view of skull.

The figures are one eighth nat. size.
From the Lias of Whitby of Yorkshire.

*Fig. 1*



*Fig. 2*

*Teleosaurus brevior.*

# PLATE 17.

## Crocodilia.

Fig.

1. Upper view of skull, *Teleosaurus latifrons*.
2. Under view of part of upper jaw of the same skull.
3. Side view of the same skull.
4. Upper view of part of under jaw of the same skull.

(The above are reduced views.)

From the Great Oolite, Northamptonshire.

*T. Erxleben lithc.*

*Day & Haghe Lith. to the Queen*

## *Teleosaurus latifrons*

# PLATE 18.

## Crocodilia.

Fig.

1. Part of skull of *Steneosaurus Geoffroyi*.
2. Skull of *Steneosaurus laticeps*.

(Both figures are reduced views.)

From the Great Oolite, Oxfordshire.

n Nature on Stone b J.Erxleben.

*Steneosaurus.*

# PLATE 19.

## Crocodilia.

Fig.

1. Upper view of skull of *Steneosaurus temporalis*.
2. Portion of occipital surface of do.
3. Under view of maxillary portion of do.
4. Upper view of lower jaw of do.

(The figures are reduced views.)

From the Oolitic Freestone, Bath.

*Stenosaurus*

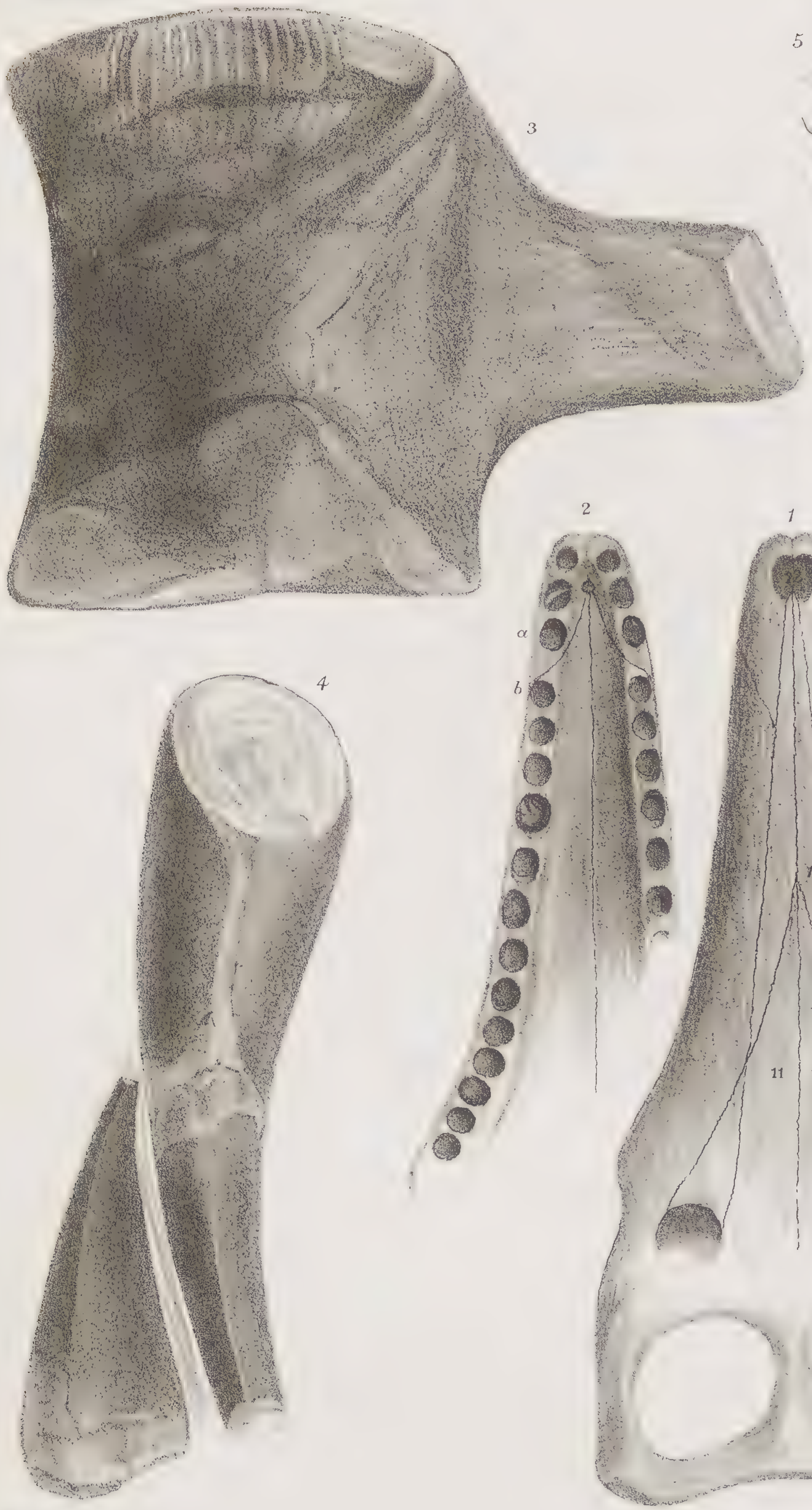
# PLATE 20.

CROCODILIA.—*Plesiosuchus Mansellii.*

FIG.

1. Upper view of skull, one sixth natural size.
2. Under view of part of palatal surface of the same, one sixth natural size.
3. Side view of a dorsal vertebra of the same, natural size.
4. Portions of an upper and lower tooth of the same, natural size.
5. Upper view, in outline, of the skull of the type-species of the genus *Steneosaurus*, Geoffroy St. Hilaire (after Cuvier, 'Ossemens Fossiles,' 4to, vol. v, pt. ii, pl. vii, fig. 13, one twelfth natural size).
6. Under view of part of the palatal surface of the skull of another specimen of Geoffroy's *Steneosaurus* (after Cuvier, 'Ossemens Fossiles,' *ut supra*, fig. 8, one fourth natural size.

The specimens of *Plesiosuchus* are from the Kimmeridge Clay, Dorsetshire, and are in the British Museum of Natural History, Cromwell Road.




C. Stone by J. Frxleben

Hanhart imp.

Order—SAUROPTERYGIA.

Genus—PLIOSAURUS, *Owen.*

## PLATE 18.

*Pliosaurus grandis.*

FIG.

1. Body of cervical vertebra, under surface.
2. Ib., front surface.

From the Kimmeridge Clay, Dorsetshire.

C Owen

# PLATE 20.

## Sauropterygia.

Fig.

1. Sterno-coraco-scapular frame, *Plesiosaurus* (Lias).
2. Ib., *Pliosaurus* (Kimmeridge Clay).

(Both figures give reduced views.)

PLIOSAURUS.

Fig. 1.

Fig. 2.

Edwan del. et lith. Hanhart imp

Order—DINOSAURIA.

## PLATE 87.

*Megàlosaurus Bucklandi.*

Fig.

1. Facial and orbital part of the skull.
2. Fore part of the lower jaw of the same skull.
3. Inner side of part of the same jaw.
4. Vertical section of the jaw, with germs of successional teeth.
5. Skull of the great Monitor lizard (*Varanus niloticus*); the tinted part corresponds to the fossil.

(All the figures are of the natural size.)

From the Inferior Oolite, Sherborne, Dorset.

*Fig. 3.*




*Fig. 1.*

*Fig. 4.*



*Fig. 5.*



*Fig. 2.*

MEGALOSAURUS

From Nature by J Erxleben .

Hanhart imp

Order—DINOSAURIA.

PLATE 88.

*Bothriospondylus magnus.*

Side view of a dorsal vertebra; natural size.

From the Wealden, Isle of Wight.

A.W. Gawan. del. et lith.

Hanhart imp

BOTHRIOSPONDYLUS MAGNUS, OW. *Nat Size*

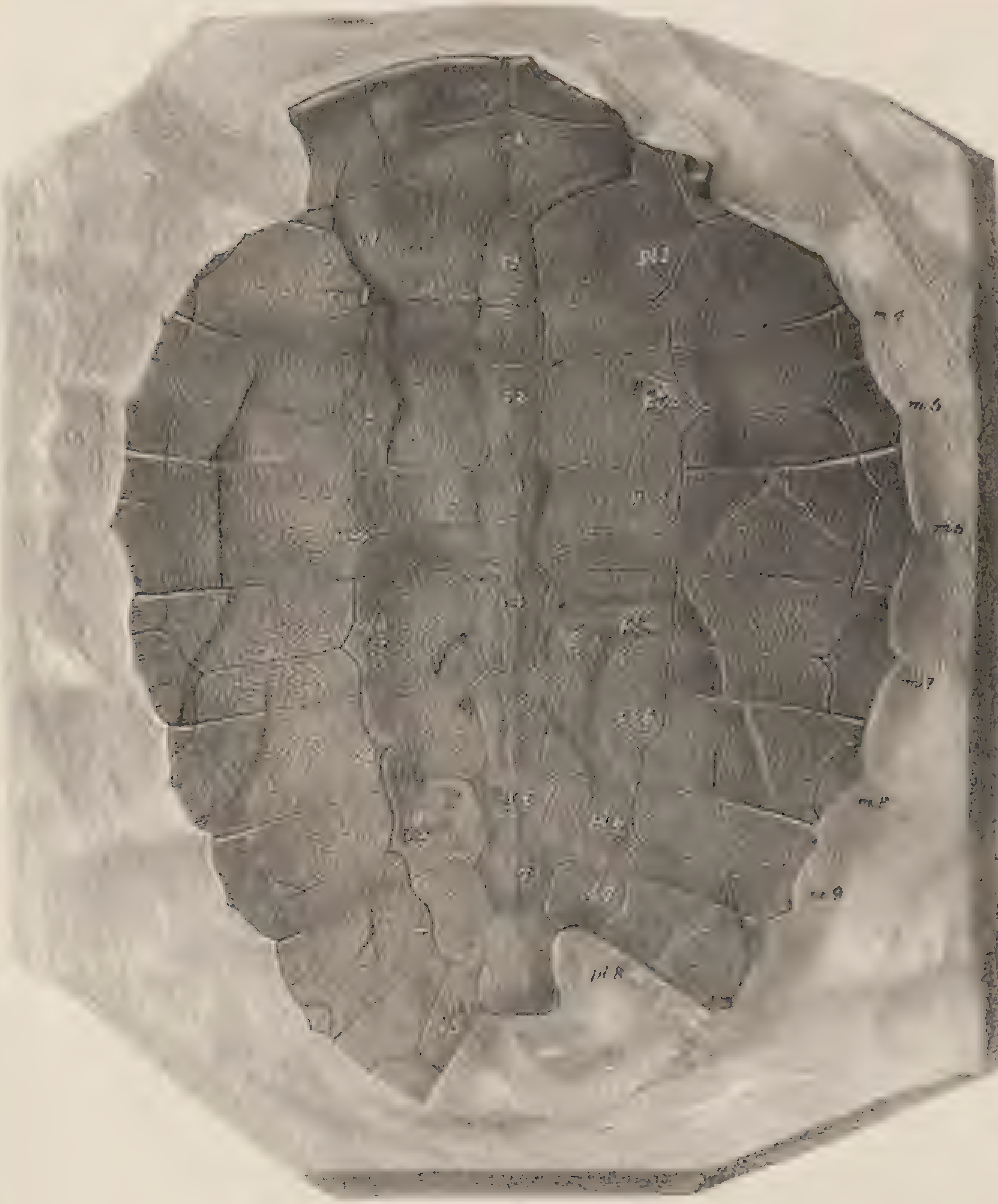
Order—CHELONIA.

Genus—PLEUROSTERNON.

PLATE 53.

Carapace of *Pleurosternon concinnum ;* half natural size.

From the Purbeck Limestone, Swanage, Dorset.




½

J. Dinkel lith. Day & Son, Lithrs to The Queen

*Pleurosternon concinnum.*

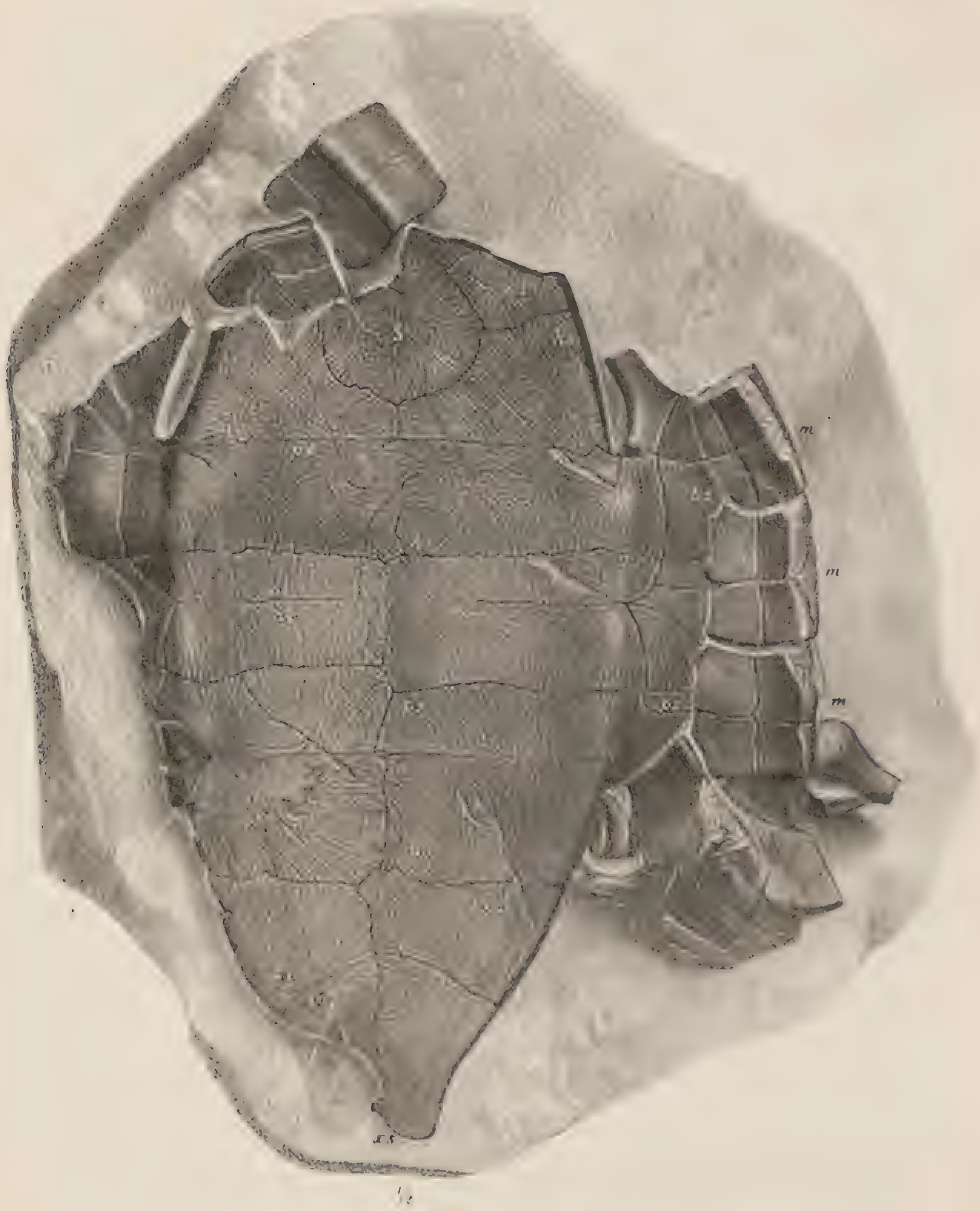
Order—CHELONIA.

Genus—PLEUROSTERNON.

## PLATE 54.

Plastron of *Pleurosternon concinnum;* half natural size.

From the Purbeck Limestone, Swanage, Dorset.




J Dinkel lith.

Pleurosternon concinnum

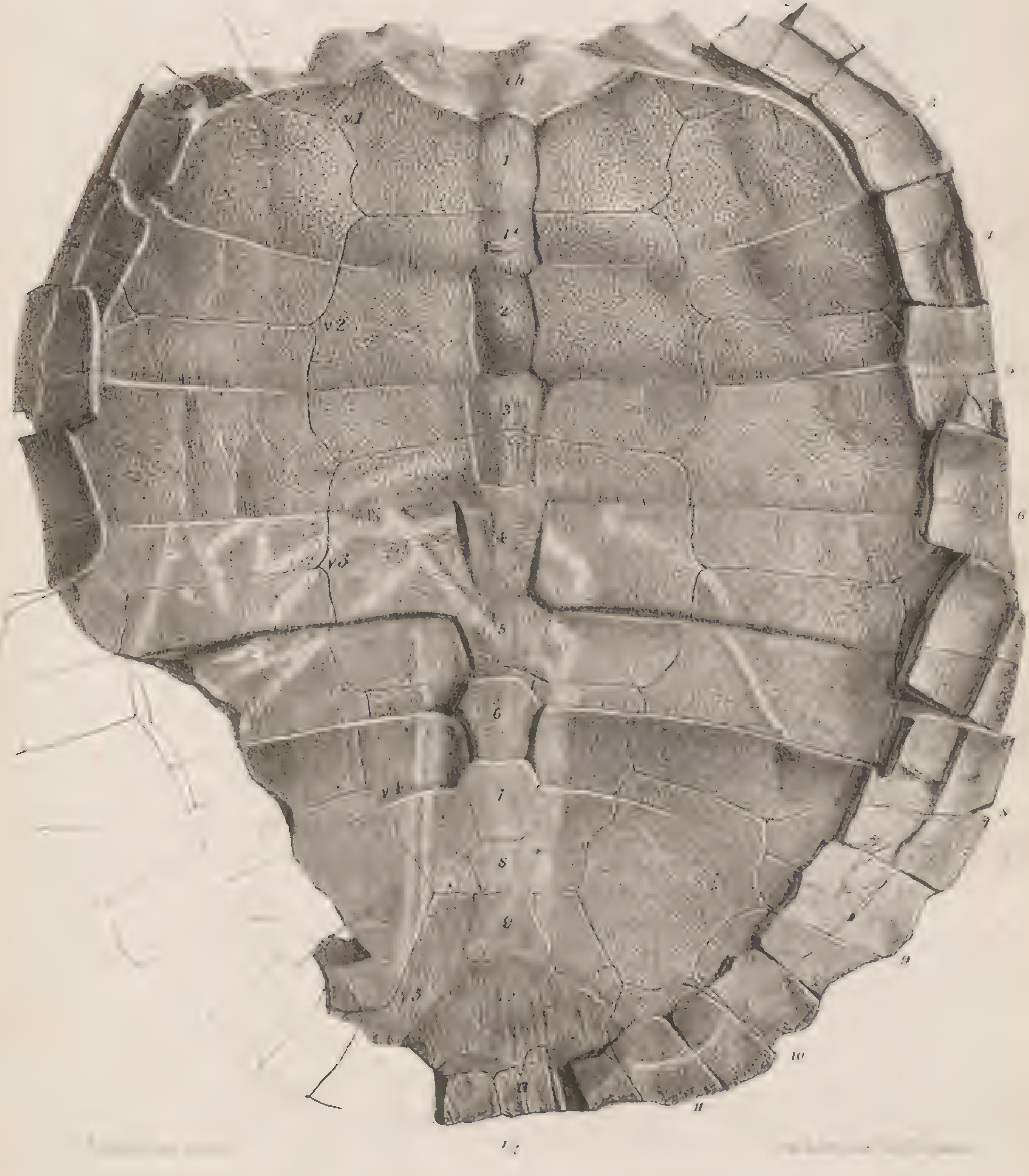
Order—CHELONIA.

Genus—PLEUROSTERNON.

PLATE 55.

Carapace of *Pleurosternon emarginatum ;* half natural size.

From the Purbeck Limestone, Swanage, Dorset.




*Pleurosternon emarginatum.*

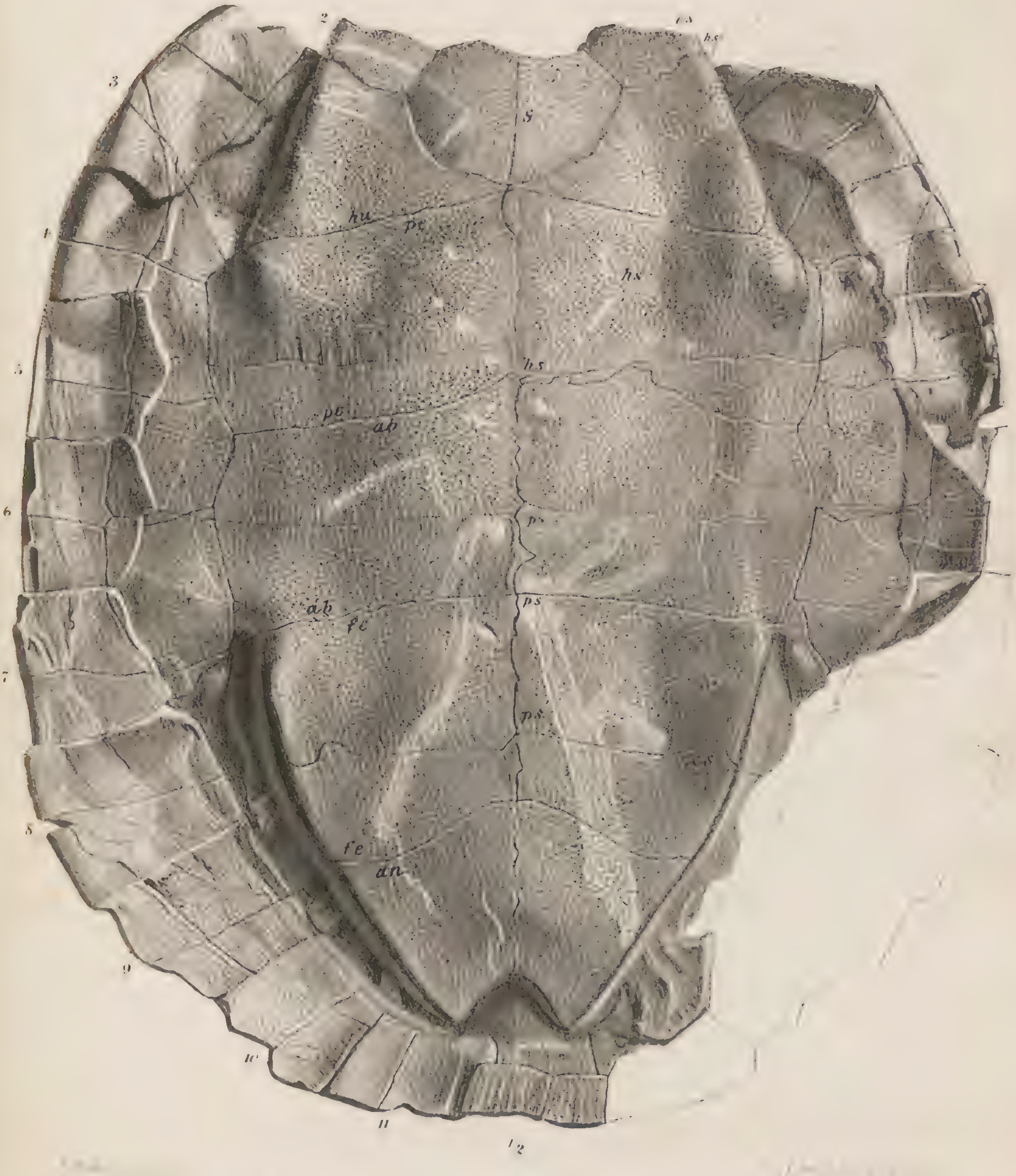
Order—CHELONIA.

Genus—PLEUROSTERNON.

PLATE 56.

Plastron of *Pleurosternon emarginatum ;* half natural size.

From the Purbeck Limestone, Swanage, Dorset.




*Planolarium emarginatum*

Order—CHELONIA.

Genus—PLEUROSTERNON.

PLATE 57.

Carapace of *Pleurosternon ovatum ;* one third natural size.

From the Purbeck Limestone, Swanage, Dorset.

Jos Dinkel, del et lith

Lith^rs to The Queen.

Order—CHELONIA.

Genus—PLEUROSTERNON.

PLATE 58.

Carapace of *Pleurosternon latiscutatum ;* half natural size.

From the Purbeck Limestone, Swanage, Dorset.

*Pleurosternon latiscutatum*

Order—CHELONIA.

Genus—PLATEMYS.

## PLATE 52.

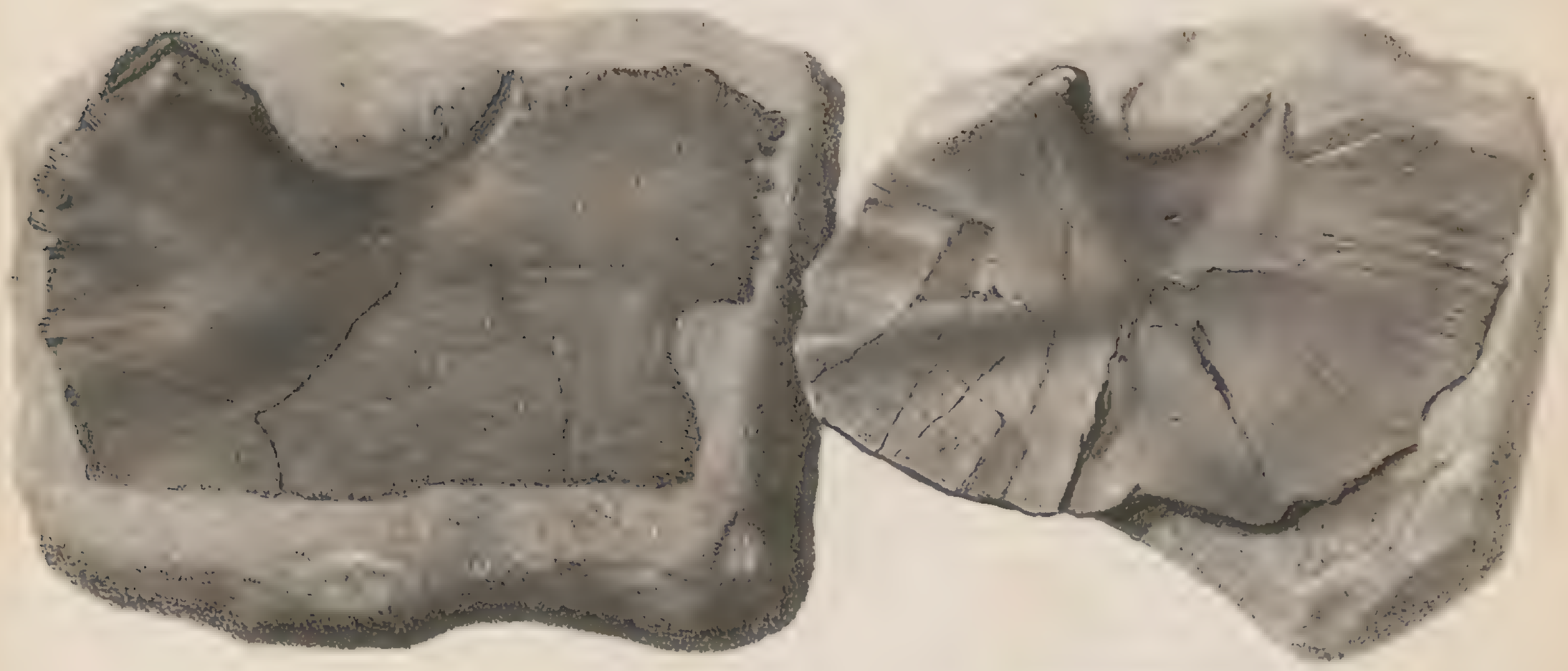
FIG.

1. Hyosternal element of the plastron, *Platemys Mantelli*.
2. The same element of the plastron, *Platemys Brodiei*.
3. Hyposternal element of the plastron, *Platemys Dixoni*.
4. Inner surface of hyposternal element, *Platemys* (*?*).

From the Wealden of Tilgate Forest.

1

2



3

4

*Half Nat. size.*

*del. et lith*

*Fig. 1. Platemys Mantelli. Fig. 3. Platemys Dixoni.*

Order—CHELONIA.

Genus—CHELONE.

## PLATE 51.

FIG.

1. Inner surface of a portion of the carapace of *Chelone costata.*
2. Right femur of *Chelone costata.*
3. Right iliac bone of do.

From the Wealden of Tilgate Forest.

1

2

3

*Nat. size.*

*Cetiosaurus medius*

# PLATE XXX.

CHELONIA.

Skull of *Chelone gigas*, upper view; nat. size.

From the Eocene Clay, Sheppey.

IHE ON STONE BY J ERXLEBEN.

PRINTED BY M & N HANHART

CHELONE GIGAS.

# PLATE XXXI.

CHELONIA.

FIG.

1. Side view of skull of *Chelone gigas*.
2. Base view of do. do.
3. Back view of do. do.

All the figures are one third of the natural size.

From the Eocene Clay, Sheppey.

CHELONE GIGAS 1/3

Order—LABYRINTHODONTIA.

Genus—LABYRINTHODON.

PLATE 2.

*Batrachia.*

FIG.

1. Outer view of part of a left mandibular ramus, *Labyrinthodon Jaegeri.*
1.* Alveolar border of the same.
2. Outer view of hind part of left mandibular ramus, ib.
3. Inner view of the hind end and angle of a right mandibular ramus, ib.

From the Trias (Keuper Sandstein) of Wirtemberg.

(Subjects, originally selected for Plate 1, are introduced as Woodcuts in the text, pp. 190, 197, Vol. III.)

1*

Lithog. from Nature by G. Scharf.

Printed by C. Hullmandel

Labyrinthodon Jaegeri.

## Order—LABYRINTHODONTIA.

### Genus—LABYRINTHODON.

## PLATE 3.

*Batrachia.*

The fossils characteristic of the species *Labyrinthodon leptognathus* and *Lab. pachygnathus*, selected as subjects of this Plate, are described in pp. 191—193, Vol. III.

Fig. from Nat. by G. Schaaf.

Printed by C. Hullmann el.

*Fig: 1, 2. 3. Labyrinthodon leptognathus. Fig: 4—11. Labyrinthodon pachygnathus.*

Order—LABYRINTHODONTIA.

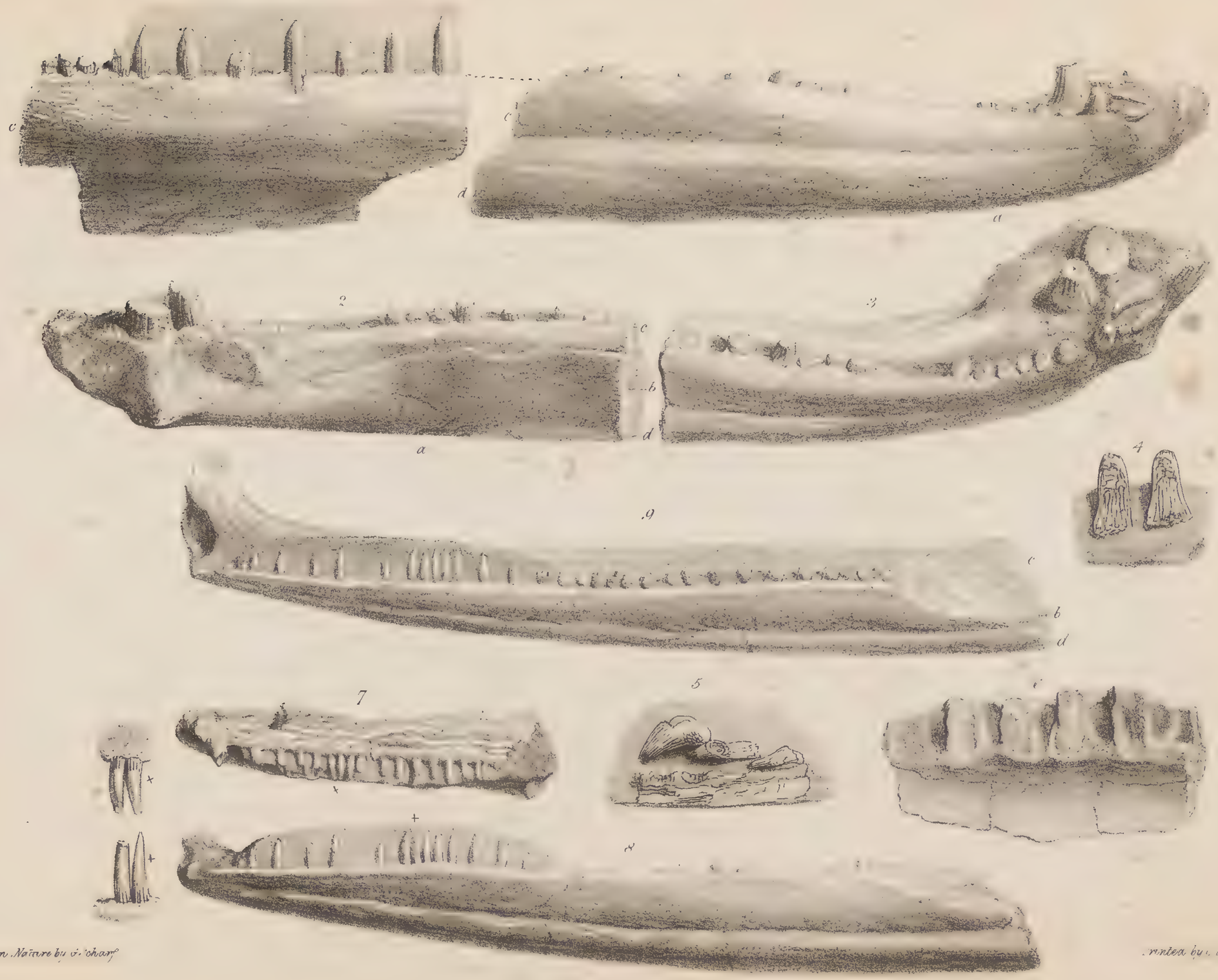
Genus—LABYRINTHODON.

## PLATE 4.

*Batrachia.*

The fossils characteristic of *Labyrinthodon leptognathus*, *Lab. pachygnathus*, and *Lab. Jaegeri*, selected as subjects of this Plate, are described in pp. 190—193, Vol. III.

Fig 1




Drawn from Nature by C. Scharf

Printed by C. Hullmandel

Fig: 1_3. Labyrinthodon pachygnathus. Fig: 7_9. Lab: leptognathus.
Fig. 1_6. Lab: Jaegeri.

Order—LABYRINTHODONTIA.

Genus—LABYRINTHODON.

PLATE 5.

*Batrachia.*

The fossils characteristic of *Labyrinthodon leptognathus* and *Lab. pachygnathus*, figured in this Plate, are described in pp. 193, 194, Vol. III.

Lithog from Nature by G. Schwarz.

Printed by C. Hullmandel

Fig. 1_4, 11_18. Labyrinthodon pachygnathus: 5_8. Lab: leptognathus.

Fig. 9 10. Lab:_____ Fig. 19. Coprolite.

Order—LABYRINTHODONTIA.

PLATE 6.

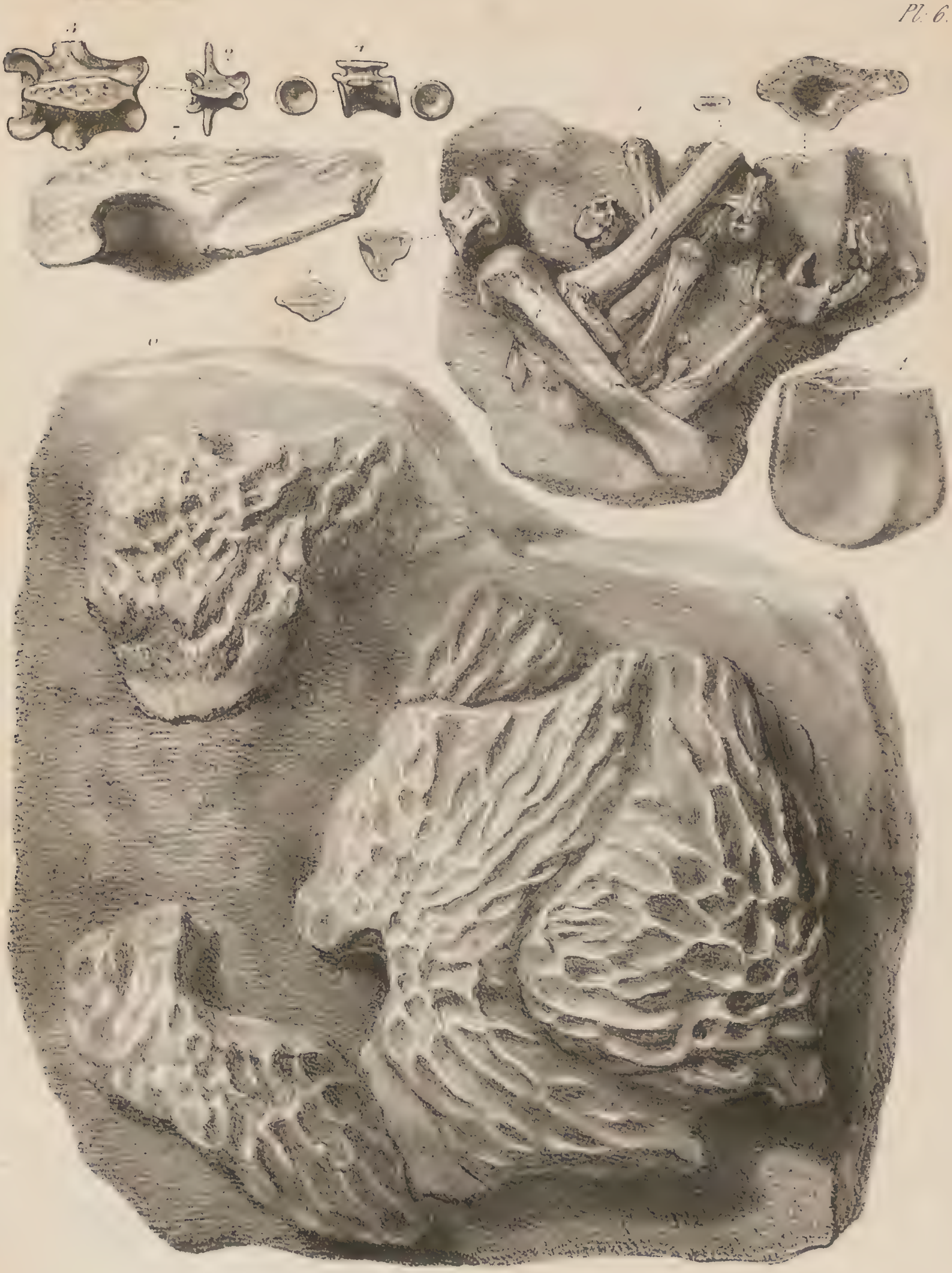
*Batrachia.*

FIG.

1—5. Parts of *Anisopus scutulatus* (pp. 195, 196, Vol. III).

6—7. Sculptured surface of portions of bone of *Labyrinthodon pachygnathus*.

(All the figured Labyrinthodon fossils are of the natural size; and, save those of *Lab. Jaegeri*, are from the Trias of Warwickshire and Cheshire.)



Litho'g from Nature by C. Smart.

Printed by C. Hullmandel

1. 5. Labyrinthodon scutulatus. 6_7. Labyrinthodon pachygnathus.

3 2044 072 221 492